

## **Errata**

Subsequently to finalising this publication, Denmark informed the Secretariat that some of the contaminant loads given for dredged material dumped by Denmark in 1995 and 1996 (cf. Tables 3b) had been miscalculated and the values reported were of a factor 100 too high. The correct values can be obtained from Denmark on request. This correction should also be taken into account when examining the assessment and any summary tables (cf. Tables II, III, IVa,b and Va,b) published in this report.

Point and Diffuse Sources  
*Sources ponctuelles et diffuses*

Dumping of Wastes at Sea in 1995 and 1996

OSPAR Commission 1999  
*Commission OSPAR 1999*

The Convention for the Protection of the Marine Environment of the North-East Atlantic (the “OSPAR Convention”) was opened for signature at the Ministerial Meeting of the former Oslo and Paris Commissions in Paris on 22 September 1992. The Convention entered into force on 25 March 1998. It has been ratified by Belgium, Denmark, Finland, France, Germany, Iceland, Ireland, Luxembourg, Netherlands, Norway, Portugal, Sweden, Switzerland and the United Kingdom and approved by the European Union and Spain.

*La Convention pour la protection du milieu marin de l'Atlantique du Nord-Est, dite Convention OSPAR, a été ouverte à la signature à la réunion ministérielle des anciennes Commissions d'Oslo et de Paris, à Paris le 22 septembre 1992. La Convention est entrée en vigueur le 25 mars 1998. La Convention a été ratifiée par l'Allemagne, la Belgique, le Danemark, la Finlande, la France, l'Irlande, l'Islande, le Luxembourg, la Norvège, les Pays-Bas, le Portugal, le Royaume-Uni de Grande Bretagne et d'Irlande du Nord, la Suède et la Suisse et approuvée par l'Espagne et l'Union européenne.*

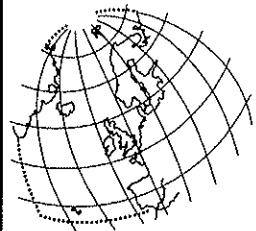
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# OSPAR Commission

## 1999



# Dumping of Wastes at Sea in 1995 and 1996

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## **ASSESSMENT OF THE ANNUAL OSPAR REPORTS ON DUMPING OF WASTES AT SEA IN 1995 AND 1996**

### **INTRODUCTION**

The assessment of the OSPAR Reports on Dumping of Wastes at Sea should aim at identifying issues of concern related to data and information reported by Contracting Parties. Furthermore, it should examine whether requirements of the OSPAR Guidelines for the Management of Dredged Materials (OSPAR agreement reference number 1998-20) and of the reporting formats (OSPAR agreement reference number 1996-1) are fulfilled, and whether changes in future reporting should be considered. This assessment also tries to provide reliable data on contaminant inputs to the OSPAR maritime area.

As two of the Contracting Parties (France and Portugal) did not provide 1995 and 1996 data on dumping of wastes at sea, there are uncertainties in the assessment. As the amounts dumped by Portugal are, according to the 1994 Dumping Report, quite small, the lack of these data may not have much influence on the assessment. However, France reported in 1994 dumping of almost 29 Mt of dredged material, representing about 13 % of the reported amounts dumped in the total Convention area. Not including these data may therefore bias the assessment. However, France indicated at SEBA 1999, that the amounts dredged and dumped in 1995 and 1996 are similar to those reported in 1994. As a rough estimate, these data were therefore considered in this assessment.

Furthermore, when examining the attached OSPAR reports for 1995 and 1996, it turned out that not all of the reporting requirements were fulfilled. This may partly be due to the fact that the 1992 OSPAR Convention was still not in force in 1995/1996. Contracting Parties should in future submit all information required by the reporting format in order to allow a proper assessment.

It might be worth considering examining trends in amounts dumped and contaminant inputs over a period of several years. As the reporting formats were only changed in 1995, it will be difficult to look at trends in dumped amounts for data reported before 1995. Therefore, trend evaluation should not be started before data of the year 1999 are available. However, trends in contaminant loads of dredged material as well as trends for other categories of waste may be examined taking into account former reports.

The OSPAR Guidelines for the Management of Dredged Materials require reports on monitoring, however, these are only submitted to OSPAR's Working Group SIME. It would be helpful to assess data on contaminant input together with impacts as they are described in the reports on monitoring. This should be considered when restructuring the working arrangements of the OSPAR Commission.

## **PERMITS**

Table 1 of the attached OSPAR reports give information on the number of permits issued and tonnes licensed for the different types of wastes dumped. Most of the permits were issued for dredged material: more than 95% of the tonnes licensed refer to dredged material. As sea disposal of sewage sludge in UK and Ireland ceased at the end of 1998, this percentage will be even higher in future.

Data reported on permits issued for dredged material (Table 1) reflects the different licensing procedures of Contracting Parties. In 1995, Belgium e.g. only issued 4 permits for dumping of ca. 32 Mt dredged material at 11 dumping sites. The UK however issued 150 permits for about the same amount of dredged material at 98 dumping sites. Iceland issued a general permit, whereas in Germany no permits are issued, although dumping operations are carried out under the control of national authorities. In the Netherlands, only one permit for 52 000 t of dredged material was issued in 1995, the remaining amount of the about 14 Mt actually dumped in 1995 were covered by (two-year) licenses issued in 1994. Information from Spain on licensing was not available.

In order to be able to effectively assess information on permits, we recommend that Contracting Parties should submit a concise summary of their licensing procedures to the appropriate OSPAR Working Group in the 1999/2000 intersessional period.

As there are doubts on the usefulness of reporting the number of permits issued with respect to dredged material, changes of the reporting format need to be considered in the 1999/2000 intersessional period.

## **SPECIFIC REPORTING ON DUMPING PERMITS**

In 1995, only two Contracting Parties and in 1996 one Contracting Party indicated the dumping of dredged material with contaminant concentrations exceeding level 2. That would mean that most dumping operations are in line with the Dredged Material Guidelines<sup>1</sup>. However, it may be that this is partly due to a lack of information, since not all Contracting Parties have established national action levels yet. As the reporting format only changed in 1995, it is also possible that some Contracting Parties still did not adjust the actual reporting to the new requirements. Therefore, Contracting Parties should make sure that this information should be reported in future, when applicable.

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<sup>1</sup> Sea disposal is not ruled out in case level 2 concentrations are exceeded, however, such material is generally considered unsuitable for sea disposal.

## **AMOUNTS OF DREDGED MATERIAL DUMPED**

As disposal of dredged material at sea may affect the environment not only through its contaminants but also physically, the total amount of material disposed of should be part of the assessment. According to Technical Annex 3 of the Dredged Material Guidelines, measures to keep the volume of dredged material to a minimum are regarded Best Environmental Practice for minimising the effects on the environment.

As already mentioned in earlier reports, trends in the amounts dumped may be difficult to establish, as the dredging requirements are strongly influenced by natural conditions as well as the dumping strategy. However, it may be possible to establish trends for sub-categories of dredged material in future assessments.

As some of the Contracting Parties indicate more than one type of area dredged or both, capital and maintenance dredgings per dumping site and do not state clearly (which amounts of the material are associated with the types) a detailed assessment is difficult to carry out. Separate evaluation of amounts dredged in harbours, estuaries or at sea can only be carried out with some uncertainty, as the respective percentages only can be estimated. Only in a few cases, further information was available (cf. Chapter "Environmentally relevant loads").

Examination of the data for 1995 and 1996 revealed that the number of dumping sites compared to the amounts of dredged material dumped varies considerably for different countries as shown for 1995 in Table 1.

Many of the Contracting Parties use only few dumping sites for large amounts of dredged material, whereas other Contracting Parties use many sites with only small amounts of sediments dumped. Furthermore, for Belgium, Germany and Spain, the bulk of the dredgings came from estuaries and sea channels, whereas for the other countries most of the dredgings came from harbours.

As in 1995 the reporting of the amounts dredged changed from wet weight to dry weight, it is difficult to compare the recent data with data reported before 1995. Therefore, a time trend cannot be examined now, as information for several years are required for this purpose. If a retrospective trend assessment is planned, additional information on the wet weight of the dredged material dumped since 1995 is required.

When multiplying the dry weight of dredged material dumped in 1995 and 1996 by a factor of 2 in order to get a rough estimate of the wet weight, the dumped material amounts to about 254 Mt and 232 Mt of wet dredged material, which are similar amounts as in previous years (cf. Report on Dumping at Sea, 1994).

## **TOTAL CONTAMINANT LOADS**

While reporting on trace metals is quite sufficient, for most of the organic contaminants listed only little information is given in Table 3b. It is not clear, whether this is due to exemptions from reporting according to §5.2 of the Dredged Material Guidelines (or Tier II of Technical Annex 1 of these guidelines) or whether Contracting Parties did not report the required data. This may be due to the fact that the Dredged Material Guidelines, which require analyses of most of the contaminants listed in the reporting format, came into force only in June 1998.

The requirements of Technical Annex 1 of the Dredged Material Guidelines as well as of the list of hazardous substances should be considered when revising the reporting format.

The national totals from Tables 3a and 3b are summarised in Tables II and III with respect to the amounts dredged as well as the total contaminant loads.

For a proper summary and assessment, only data sets that are reasonably complete, should be used. For trace metals this applies, and with few exceptions data are available for most Contracting Parties as well as for most dumping sites. However, when assessing contaminant loads for organic contaminants, care has to be taken, as only little information is provided. A total of all national loads is not given in Tables II and III, as often, loads for organic contaminant contaminants has been only reported for single dumping sites.

In 1995 and 1996 the sum of trace metal loads of all Contracting Parties are, with the exception of Hg, quite similar. The high Hg load in 1995 resulted from dumping of small amounts of apparently extremely contaminated harbour dredgings in Denmark (estimated concentration: 940 mg/kg). In addition, the concentrations of some other contaminants for some of the dumping sites in Denmark's data for 1995 are also apparently very high e.g. zinc at sites NJL34 and RIB04. However, Denmark should check their data to ensure that there are no errors in their report. Denmark has not yet established national action levels and, therefore, would not have specifically reported on this dumping operation in Table 2.

The load of TBT summed up for 3 Contracting Parties that gave information, was about 1,8 t in 1995 and 1,6 t in 1996 and seems to be quite high compared to loads that were reported for organic contaminants. However, dumping of some contaminated material or even large amounts of only slightly contaminated material from one dredging site can bias results tremendously when only limited data are reported. Compared to the total TBT input of ca 63 – 72 t in 1995 to the North Sea as presented in the 1995 North Sea Ministerial Conference progress report (SEBA 99/4/3), the contribution by dredged material only reported for few sites, appears to be quite high. However, more information is needed for a reliable evaluation and not all the measured load of TBT would have been an actual input.

## ENVIRONMENTALLY RELEVANT CONTAMINANT LOADS

As already mentioned in earlier dumping reports and e.g. in SEBA 99/11/8, the contaminant input to the OSPAR maritime area is overestimated when summing up total loads. Therefore, in addition to total loads, the reporting formats revised in 1995 required information on environmentally relevant loads. However these are only reported by the Netherlands. This may be due to the lack of a harmonised procedure for estimating such loads.

Although no information on the procedure for estimating environmentally relevant loads was provided by the Netherlands, it is assumed that these loads are calculated in the same way as the anthropogenic loads that were reported for former dumping reports. As reported earlier by the Netherlands, anthropogenic loads are estimated using the actual contaminant concentrations and the natural background concentrations (cf. SACSA 20/2/3-E). Although these anthropogenic loads may be harmful to the ecosystem and thus may be of environmental relevance, they do not necessarily constitute a new input of contaminants to the OSPAR maritime area.

Currently, efforts are being made to develop a procedure for estimating the actual contaminant input that is added to the OSPAR maritime area by dredged material instead of finding methods for estimating environmentally relevant loads that are required in the current reporting formats.

In an attempt to demonstrate the order of magnitude of "pseudo loads" that do not add contaminants to the OSPAR maritime area and of loads that may represent an input, loads are estimated separately for two categories of dredged material (Tables IV a,b and V a,b). Dredging activities in estuaries and navigation channels mainly relocate the sediments whereas particularly harbour dredgings bear the risk of adding contaminants to the OSPAR maritime area (cf. Chapter "Amounts of dredged material").

However, it should be considered that even total loads from harbours probably will overestimate the actual contaminant input, as part of this load is due to the existing contamination of the respective water body and has been taken into account when estimating contaminant loads in earlier years and/or by other input paths. Furthermore, the sediments contain trace metals within their mineral matrix.

Separate evaluations of the two categories of dredged material were already performed in earlier dumping reports, but without drawing conclusions with respect to the contaminant input.

Tables IV and V give the contaminant loads separately for harbours (Tables IV a, V a) and for estuaries and sea (Tables IV b and V b). For most trace metals, loads of dredgings from estuaries and sea often represent a considerable percentage of the total of both harbour and estuary/sea dredgings that are regarded now to be inputs. In 1995, 50% of the Cd and As loads, e.g., were due to material from estuaries

and seas. For most of the other trace metals, the percentage of loads from dredged material of estuaries and sea channels amounts to 20 – 30 % of the total. The actual inputs will be even smaller than that expected from the figures in Tables IV and V as the contaminants in the dredged material partially will have been taken into account when originally entering the maritime area.

## **ADDITIONAL INFORMATION**

Most Contracting Parties gave little additional information, most likely because the situation in these Contracting Parties (e.g. the Netherlands) has not changed compared to the information contained in previous OSPAR reports.

However, there is particularly a lack on information on methods of determination. As in some Contracting Parties, several laboratories are involved in analyses and therefore analytical methods can differ, this may have caused difficulties to collect and summarise this information.

Based on the information provided in the dumping reports and the additional information, it was impossible to evaluate consistency and quality of the data. The Expert Assessment Panel feels that for this task such a huge amount of information had to be examined that an evaluation cannot be carried out in the frame of SEBA. Contracting Parties have to ensure for themselves the quality of data provided for the Dumping Reports.

## **MAPS**

The design of maps presented in the reports differs widely for Contracting Parties. It would be an advantage to have the same or a similar presentation for all Contracting Parties, e.g. based on a GIS. When reviewing the reporting format, the usefulness of the maps should also be considered, and if deemed useful, improvements should be considered.

**Table I: Overview on the number of dumping sites and amounts of dredged material dumped in 1995**

<b>Contracting Party</b>	<b>Number of dumping sites</b>	<b>Amounts dumped</b>
Belgium	11	31 077 768
Denmark	17	500 257
France <sup>2</sup>	20	28 792 778
Germany	21	26 462 000
Iceland	8	131 721
Ireland	7	620 207
The Netherlands	8	14 199 240
Norway	12	288 647
Spain	8	2 890 800
Sweden	12	1 748 600
UK	98	20 738 251

<sup>2</sup> 1994 data used as an indication of approximate figures for 1995

Table II: Summary of Amounts of Wastes Dumped at Sea in 1995

Waste Material /Country	total quantity (in metric tonnes) dry weight	In tonnes								In kilogramms								
		Cd	Hg	As	Cr	Cu	Pb	Ni	Zn	Oil	Total PAH	Total CB	HCB	g-HCH	Diel-HCH	DDT	TBT	DBT
<b>Dredged Material</b>																		
Belgium	31 189 426	40.5	6.1	282.8	834.2	318.0	864.9	395.8	2280.3									
Denmark	500 236	0.9	25.7	22.7	47.6	45.8	52.5	8.8	255.2									
France *	28 792 778	6.4	1.8	70.8	266.7	117.5	73.5	257.0	1703.2									
Germany **	26 462 000	0.9	0.5	24.9	87.1	34.1	82.8	33.7	229.1	20.7	0.4	82	4	10	4	4		
Iceland	131 721																	
Ireland	620 207	0.1	0.0	3.1	12.3	4.1	8.2	7.4	28.5			1	0	0	0	1	0	
The Netherlands	14 199 240	12.5	4.8	187.7	682.9	418.1	669.8	262.2	2348.5	2841.1	19.3	19	27	11			577	
Norway	288 647	0.0	0.0			0.0	0.3	0.0				0.3	4					
Spain	2 890 800	2.4	2.1	85.1	57.9	100.1	146.3	29.5	638.6			2.3	44					
Sweden	1 748 600	0.0	0.0	0.7	2.1	1.7	1.1	1.2	5.5									
UK	20 254 260	7.2	8.7	36.4	1454.8	745.8	615.6	1534.8	3517.5	54.5								
Total =	127 077 885	71.1	49.7	714.3	3445.6	1785.0	2515.0	2530.4	11006.3	2916.3	22.3	291	23	38	15	4	1813	319
<b>Inert Materials</b>																		
UK	187 802																	
<b>Sewage Sludge</b>																		
Ireland	332 025	0.0	0.0	0.1	1.2	6.5	5.1	1.1	16.9			8	5	4	5	4		
UK	296 249	1.1	0.7	0.5	75.1	152.1	17.7	103.1	293.2	1241.8		32	1	2	2	0		
Total =	628 274	1.1	0.7	0.7	76.3	158.6	22.8	104.2	310.2	1241.8		40	6	6	7	4		
<b>Fish Waste</b>																		
Iceland	138																	
Ireland	60																	
Total =	198																	
<b>Vessels/Aircraft</b>																		
Norway ***	33																	

France \* - 1994 data used as an indication of approximate figures for 1995

Germany \*\* - including 724 000 tonnes from the Netherlands

Norway \*\*\* - does not include tonnage of vessels

**Table III: Summary of Amounts of Wastes Dumped at Sea in 1996**

Waste Material /Country	total quantity (in metric tonnes) dry weight	in tonnes								in Kilogrammes							
		Cd	Hg	As	Cr	Cu	Pb	Ni	Zn	Oil	Total PAH	HCB CB	G- HCH	Diel- drin	DDT	TBT	DBT
<b>Dredged Material</b>																	
Belgium	29 264 498	47,8	6,5	309,1	944,2	251,1	1026,4	439,1	2510,4								
Denmark	562 784	0,7	0,2	2,4	53,6	28,8	39,8	6,4	167,3								
France *	28 792 778	6,4	1,8	70,8	266,7	117,5	73,5	257,0	1703,2								
Germany **	19 123 000	0,6	0,3	19,4	72,0	32,4	71,5	32,1	197,5	24,3	1,0	3				8	
Iceland	220 598																
Ireland	1 372 734	1,3	0,2	8,0	27,3	17,8	32,5	22,6	115,2								
The Netherlands	8 016 381	5,0	2,5	119,6	304,6	155,5	280,2	120,0	969,6	815,8	9,1	112	7	7	2	31	
Norway	399 716	0,0	0,0					0,3								0	
Spain	2 055 148	4,2	4,0	59,3	66,1	85,4	178,8	34,2		680,5		38,2					
Sweden	3 308 608	0,0	0,1	0,0	0,0	0,0	0,0	0,6	0,0								
UK	24 105 334	9,2	7,6	18,1	1612,9	834,8	701,5	1813,6	4149,1	18,2							
<b>Total =</b>	<b>117 221 679</b>	<b>75,2</b>	<b>23,1</b>	<b>606,7</b>	<b>3347,3</b>	<b>1523,4</b>	<b>2405,1</b>	<b>2724,9</b>	<b>10492,8</b>	<b>858,3</b>	<b>48,7</b>	<b>684</b>	<b>7</b>	<b>11</b>	<b>5</b>	<b>1588</b>	<b>392</b>
<b>Inert Materials</b>																	
Ireland	16 000																
<b>Sewage Sludge</b>																	
Ireland	11 758	0,0	0,0	0,0	0,3	1,7	1,8	0,3	4,6								
UK	276 609	0,8	0,6	0,6	70,7	129,8	15,4	90,7	284,6	1375,0		33	1	3	2	1	
<b>Total =</b>	<b>288 367</b>	<b>0,9</b>	<b>0,6</b>	<b>0,6</b>	<b>71,0</b>	<b>131,5</b>	<b>17,2</b>	<b>91,0</b>	<b>289,3</b>	<b>1375,0</b>	<b>33</b>	<b>1</b>	<b>3</b>	<b>2</b>	<b>1</b>		
<b>Fish Waste</b>																	
Ireland	605																
UK	16																
<b>Total =</b>	<b>621</b>																
<b>Vessels/Aircraft</b>																	
Norway ***	950																

France \* - 1994 data used as an indication of approximate figures for 1996

Germany \*\* - including 381 000 tonnes from the Netherlands

Norway \*\*\* - does not include tonnage of all vessels

Table IV a:

Amounts of Dredged Material and Associated Contaminants Dumped in 1995 from Harbours

Countries	total quantity in metric tonnes dry weight	in tonnes							in kilogrammes					
		Cd	Hg	As	Cr	Cu	Pb	Ni	Zn	Oil	Total PAH	Total CB	TBT	DBT
Belgium	3 984 667	10,8	1,6	55,5	191,2	126,0	293,1	91,0	657,0					
Denmark	497 561	0,9	25,7	22,7	47,6	45,8	52,4	8,8	255,2					59
France *	7 874 035	2,5	0,9	38,0	172,9	78,2	40,4	164,1	1511,7					
Germany **	1 257 000	0,8	0,5	24,0	84,7	33,4	80,4	32,8	224,1	20,7	0,4			82
Iceland	131 721													
Ireland	602 331	0,1	0,0	2,9	119	3,9	7,8	7,1	26,8					
The Netherlands	14 199 240	12,5	4,8	187,7	682,9	418,1	669,8	262,2	2348,5	2841,1	19,3			
Norway	288 647	0,0	0,0			0,0	0,3	0,0			0,3			
Spain	717 333	1,2	0,6	12,8	25,8	30,2	60,2	13,5	261,2		0,6			21
Sweden	1 748 600	0,0	0,0	0,7	2,1	1,7	1,1	1,2	5,5					
UK	17 432 922	6,1	7,3	28,7	1331,0	642,7	558,1	1347,5	3128,0	49,0				1155 303
Total =	48 734 057	35,0	41,4	373,1	2550,1	1379,9	1763,5	1928,3	8418,0	2910,9	20,6	447	1733	303

France \* - 1994 data used as an indication of approximate figures for 1995

Germany \*\* - including 724 000 tonnes from the Netherlands

Table IV b: Amounts of Dredged Material and Associated Contaminants Dumped in 1995 from Estuary and Sea Channels

Countries	total quantity in metric tonnes dry weight	in tonnes							in kilogrammes					
		Cd	Hg	As	Cr	Cu	Pb	Ni	Zn	Oil	Total PAH	Total CB	TBT	DBT
Belgium	27 204 769	29,7	4,5	227,3	643,0	192,0	571,9	304,8	1623,3					101
Denmark	2 695	0,0	0,0			0,0	0,1							
France *	20 918 743	4,0	0,9	32,8	93,8	39,3	33,1	92,9	191,5					
Germany	25 205 000	0,0	0,0	0,9	2,3	0,7	2,4	0,9	5,0					
Iceland														
Ireland	17 876	0,0	0,0	0,2	0,4	0,1	0,4	0,4	1,7					
The Netherlands										0				
Norway	2 173 467	1,3	1,5	72,3	32,1	69,9	86,2	16,0	377,4	1,7				23
Spain														
Sweden														
UK	2 821 278	1,1	1,3	7,7	123,9	103,1	57,5	187,3	389,6	5,5	1,7	124	80	16
Total =	78 343 828	36,1	8,3	341,2	885,5	405,2	751,6	602,2	2588,4	5,5	1,7			

France \* - 1994 data used as an indication of approximate figures for 1995

Table V a: Amounts of Dredged Material and Associated Contaminants Dumped in 1996 from Harbours

Countries	total quantity (in metric tonnes) dry weight	in tonnes							in kilogramms				
		Cd	Hg	As	Cr	Cu	Pb	Ni	Zn	Oil	Total PAH	Total TBT	DBT CB
Belgium	3 380 536	9,3	1,4	47,2	160,6	107,7	250,9	77,6	559,3				
Denmark	255 875	0,5	0,2	0,2	50,0	24,9	35,3	1,4	149,3				
France *	7 874 035	2,5	0,9	38,0	172,9	78,2	40,4	164,1	1511,7				
Germany **	895 000	0,6	0,2	18,7	69,9	31,7	70,3	31,3	193,1	24,3	1,0	3	8
Iceland	220 698												
Ireland	887 138	0,7	0,1	5,3	17,1	11,0	21,4	14,7	73,4			28	18
The Netherland	8 016 381	5,0	2,5	119,6	304,6	155,5	280,2	120,0	969,6	815,8	9,1	112	
Norway	399 716	0,0	0,0					0,3			0,4	4	
Spain	1 702 188	2,4	2,2	35,6	49,7	53,4	113,8	28,0	439,3			170	
Sweden	2 843 286	0,0	0,1	0,0	0,0	0,0	0,0	0,0	0,0		0		
UK	20 916 444	8,7	7,2	16,6	1533,9	790,1	669,2	1721,9	3934,9	8,1		1479	378
Total =	47 391 295	29,6	14,8	281,1	2358,7	1252,5	1482,5	2159,0	7830,6	848,2	29,8	367	1504
												378	

France \* - 1994 data used as an indication of approximate figures for 1996  
Germany \*\* - including 381 000 tonnes from the Netherlands

Table V b: Amounts of Dredged Material and Associated Contaminants Dumped in 1996 from Estuary and Sea Channels

Countries	total quantity (in metric tonnes) dry weight	in tonnes							in kilogramms				
		Cd	Hg	As	Cr	Cu	Pb	Ni	Zn	Oil	Total PAH	Total TBT	DBT CB
Belgium	25 883 962	38,6	5,1	261,9	783,6	143,4	775,5	361,5	1951,1				
Denmark	306 909	0,1	0,0	2,2	3,6	4,0	4,5	5,0	18,1				
France *	20 918 743	4,0	0,9	32,8	93,8	39,3	33,1	92,9	191,5				
Germany **	18 228 000	0,0	0,0	0,7	2,1	0,7	1,1	0,8	4,4				
Iceland	485 596	0,5	0,1	2,8	10,1	6,8	11,1	7,9	41,8			28	0
The Netherland	0												
Norway	352 961	1,8	1,8	23,6	16,4	32,0	65,0	6,2	241,2			18,8	
Spain	465 323	0,6	0,4	1,6	79,1	44,6	32,3	91,7	214,2	10,0		70	
Sweden	3 188 890	8,3	325,6	988,6	270,9	922,6	565,9	2662,3	10,0	18,8	322	83	14
Total =	69 830 384	45,6											

France \* - 1994 data used as an indication of approximate figures for 1996



# OSPAR Commission 1999



## Dumping of Wastes at Sea in 1995

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The continental decimal system is used throughout this report. Empty cells indicate that no information was available. Italic numbers are used when the measured/calculated value was smaller than the actual number given in the cell.

## Report on Dumping Permits Issued in 1995

**Table 1** Overview of number of permits issued and tonnes licensed in 1995

Contracting Party	Number of permits issued for waste category						Tonnes licensed (dry weight)	Notes
	Dredged material	Sewage sludge	Inert Material	Fish waste	Vessels or aircraft	Other waste		
Belgium	4						31 875 000	
Denmark	23						2 170 000	
Germany	-	-	-	-	-	-	-	(1)
Iceland	G.P.						131 711	General permit (2)
				1			138	(3)
Ireland	17						2 052 750	
				2			3 550	
The Netherlands	1						52 000	
Norway	12						154 781	(4)(5)
					5		NI	(4)(6)
						3	33	(4)
Portugal								
Spain	-	-	-	-	-	-	-	
Sweden	12						1 748 600	
United Kingdom	150						32 778 333	(7)
	15						308 555	(7)(8)
		(9)						(9)
				1			14 500	(10)

## Report on Dumping Permits Issued in 1995

**Table 2** Specific reporting on permits issued in 1995\*

Contracting Party	Number of permits issued per waste category					Contaminants/ Material of concern**		Reasons for classification
	Dredged material	Sewage sludge	Inert Material	Vessels or aircraft	Other waste	Type	Level 2 (mg/kg)	
Norway	1					PAH, PCB	(1)	Safety of navigation. Area eventually to be covered up.
				5		3 wooden, 2 iron vessels		
					3	steel and iron scrap		
Sweden	2					X		Weight

\* Reporting requirements are specified in Appendix 1, point (b) of the Reporting Formats adopted at PRAM 1995  
for the Annual Reporting of Dumping Permits Issued

\*\* Specification required only for dredged material and sewage sludge

## Amounts of Wastes Dumped at Sea in 1995

**Table 3a Details of deposit sites and dumping methods**

OSCOM-codes Deposit site	categories of waste				origin name of watersystem	dredged material type of areas dredged	dredging operation ty capital maintenance	Other waste categories place of origin	dry weight	(in metric tonnes) total org. C	or similar notes
	dredged material	inert material	sewage sludge	fish waste							
<b>Belgium</b>											
B/1	X				Pas van het Zand		X			1 214 625	
B/1	X				CDNB Zeebrugge		X			2 104 934	
B/1	X				Scheur Oost		X			1 182 139	
B/1	X				Scheur West		X				
B/3	X				Pas van het Zand		X				
B/3	X				CDNB Zeebrugge		X				
B/3	X				Scheur Oost		X				
B/3	X				Scheur West		X				
B/6	X				Zeebrugge harbour		X				
B/6	X				CDNB Zeebrugge		X				
B/9	X				Stroombankkil		X				
B/9	X				Oostenda harbour		X				
B/INT/1	X				Sch. vd Spijkerplaat		X				
B/INT/2	X				Vloedschaar Everingen		X				
B/INT/3	X				Eboschaar Everingen		X				
B/INT/4	X				Gat van Ossenisse		X				
B/INT/5	X				Plaat van Ossenisse		X				
B/INT/6B	X				Linkerkreef Zuidergat		X				
B/INT/7	X				Schaar van Waarde		X				
<b>Total</b>											
<b>Denmark</b>											
DK/FRB08	X				Gilleleje Havn		X			15 412	
DK/FRB16	X				Hundested Trafikhavn Nord		X			2 695	
DK/FRB24	X				Lynæs Havn		X			2 930	
DK/NIL03	X				Fredrikshavn Havn		X			3 825	
DK/NIL34	X				Skagen Havn		X			60 750	
DK/NIL36	X				Strandby Havn		X			49 485	
DK/RIB01	X				Esbjerg Havn		X			135 000	
DK/RIB02	X				Fano Lo		X			750	
DK/RIB03	X				Stunden		X			29 250	
DK/RIB04	X				Stunden		X			29 250	
DK/RIB04	X				Esbjerg Havn		X			73 284	
DK/VIB09	X				Hansholm Havn		X			13 500	
DK/VIB10	X				Hansholm Havn		X			13 500	
DK/VIB20	X				Vildsund Havn		X			1 229	

Table 3a Details of deposit sites and dumping methods

*OSPAR Commission, 1999:  
Dumping of Wastes at Sea in 1995*

**Amounts of Wastes Dumped at Sea in 1995**

**Table 3a Details of deposit sites and dumping methods**

OSCOM-codes Deposit site	categories of waste				origin name of watersystem	dredged material	dredging operation ty place of origin	Other waste categories		total quantity (in metric tonnes)	notes
	dredged material	inert material	sewage sludge	fish waste				dry weight	total org. C		
IS/23	X									610	(1)
IS/25	X									26 230	(1)
IS/51	X									21 665	(1)
IS/53	X									33 550	(1)
IS/58	X									866	(1)
IS/78				X						138	
<b>Total</b>										<b>131 839</b>	
<b>Ireland</b>											
Irl/1	X				Burtonport					9 354	
Irl/6	X				Dublin Port					515 377	
Irl/9	X				Rosslare Hbr.					13 417	
Irl/17	X				Cork Hbr.					3 518	165
Irl/20	X				Boye Est.					28 716	919
Irl/22	X				Limerick Hbr.					48 625	973
Irl/23					Kilmore Quay					332 025	13 662
Irl/26	X									1 200	
Irl/27										60	
<b>Total</b>										<b>952 292</b>	<b>15718,5</b>
<b>The Netherlands</b>											
NL/5	X				Rotterdam harbour					8 755 641	
NL/6	X				Scheveningen harbour					76 058	3 572
NL/7	X				Hilvarden harbour					1 252 25	70 168
NL/10	X				Eastern Sceldt harbours					20 273	
NL/11	X				Western Sceldt harbours					2 181 715	
NL/13	X				Waddensea W harbours					802 802	
NL/14	X				Waddensea E harbours					440 487	
NL/15	X				Ems-Dollard harbours					669 339	
<b>Total</b>										<b>14 199 240</b>	
<b>Norway</b>											
N/1	X				Ostfold, Oslofjord					5 520	
N/2	X				Oslo/Akers., Oslofjord					2 916	
N/3	X				Vestfold, Oslofjord					10 215	
N/5	X				Aust-Agder, Skagerak					2 082	
N/6	X				Vest-Agder, Skagerak					42 380	
N/6					X Vest-Agder, Skagerak						
N/8					X Hordaland						
					2 vessels steelwire					7	(2)

Table 3a Details of deposit sites and dumping methods

*OSPAR Commission, 1999:  
Dumping of Wastes at Sea in 1995*

OSCCM-codes Deposit site	categories of waste				origin name of watersystem	dredged material type of areas dredged	dredging operation capital	dry weight	total quantity (in metric tonnes)	
	dredged material	inert material	sewage sludge	Fish waste					place of origin	other waste categories
N/9 X				X	Sogn og Fjord., North Sea	X	X	89 520		(2)
N/9 X					Sogn og Fjord., North Sea	X	X	20		
N/10 X					Møre og Romsdal, Norwegian Sea	X	X	7 440		
N/11 X					Sør-Trøndelag, Norwegian Sea	X	X	2 496		
N/11 X					Sør-Trøndelag, Norwegian Sea	X	X	6		
N/12 X				X	Nord-Trøndelag, Norwegian Sea	X	X	111 048		(2)
N/12 X					Nord-Trøndelag, Norwegian Sea	X	X	9 320		
N/13 X					Nordland, Norwegian Sea	X	X	4 750		
N/14 X					Troms, Norwegian Sea	X	X	1 100		
N/15 X					Finnmark, Barents Sea	X	X	288 680		
<b>Total</b>										
<b>Spain</b>										
E/1 X					Puerto de Pasajes	X	X			
E/2 X					Puerto de Bilbao	X	X			
E/5 X					Puerto de Alcántara	X	X			
E/6 X					Puerto de El Ferrol	X	X			
E/8 X					Puerto de Vigo	X	X			
E/10 X					Puerto de Huelva	X	X			
E/11 X					Puerto de Sevilla	X	X			
E/12 X					Puerto de Cádiz	X	X			
<b>Total</b>										
<b>Sweden</b>										
SWE/1 X					Skagerrak	X	X			
SWE/2 X					Skagerrak	X	X			
SWE/3 X					Skagerrak	X	X			
SWE/4 X					Skagerrak	X	X			
SWE/5 X					Skagerrak	X	X			
SWE/6 X					Skagerrak	X	X			
SWE/7 X					Skagerrak	X	X			
SWE/8 X					Skagerrak	X	X			
SWE/9 X					Skagerrak	X	X			
SWE/10 X					Skagerrak	X	X			
SWE/11 X					Skagerrak	X	X			
SWE/12 X					Cattegat	X	X			
<b>Total</b>										
<b>UK</b>										
UK/CR023 X					Moray Firth	X	X			(3)

## Amounts of Wastes Dumped at Sea in 1995

**Table 3a Details of deposit sites and dumping methods**

OSCOM-codes	Deposit site	categories of waste	origin	dredged material	Other waste categories	total quantity (in metric tonnes)
	dredged material	inert material	sewage sludge	vessels/ aircraft	name of watersystem	total org. C or similar
					place of origin	notes
UK/CR030	X				Moray Firth	(3)
UK/CR040	X				Spey Bay/Moray Firth	
UK/CR050	X				Grampian Coast	
UK/CR060	X				Fraserburgh Bay	
UK/CR080	X				Grampian Coast	
UK/CR110	X				Dee River	
UK/Dv010	X				Kent Coast	
UK/Ef065	X				Lingga Sound	
UK/FO003	X				Grampian Coast	
UK/FO020	X				Tayside Coast	
UK/FO021	X				Firth Of Tay	
UK/FO025	X				Firth Of Tay	
UK/FO036	X				Firth Of Forth	
UK/FO038	X				Firth Of Forth	
UK/FO041	X				Firth Of Forth	
UK/FO044	X				Firth Of Forth	
UK/FO048	X				Firth Of Forth	
UK/FO051	X				Firth Of Forth	
UK/HB035	X				North Minch	
UK/HU015	X				Humberside Coast	
UK/HU020	X				Humber River	
UK/HU030	X				Humber River	
UK/HU040	X				Humber River	
UK/HU041	X				Humber River	
UK/HU060	X				Humber River	
UK/HU080	X				Humber River	
UK/HU081	X				Humber River	
UK/HU090	X				Humber River	
UK/HU111	X				Humber River	
UK/HU139	X				Witham River	
UK/HU140	X				Great Ouse River	
UK/HU141	X				Great Ouse River	
UK/HU150	X				Yare River	
UK/HU160	X				Suffolk Coast	
UK/IS040	X				Anglesey Coast	
UK/IS110	X				Mersey River	
UK/IS120	X				Mersey River	
UK/IS128					Mersey River	

## Amounts of Wastes Dumped at Sea in 1995

**Table 3a Details of deposit sites and dumping methods**

OSCOM-codes Deposit site	categories of waste				origin name of watersystem	dredged material			other waste categories		dry weight	total quantity (in metric tonnes)	notes
	dredged material	inert material	sewage sludge	fish waste		Harbour	Estuary	Sea	dredging operation capital	place of origin			
UK/ISI40	X				Mersey River	X (87%)	X (10%)	X	X	X	1 320	909	
UK/ISI45	X				Mersey River	X (33%)	X (67%)				52	792	
UK/ISI70	X				Wye River	X					742	574	(3)
UK/ISI92	X				Lune River	X					564		(3)
UK/IS200	X				Lancashire Coast	X					237	775	
UK/IS205	X				Cumbria Coast	X (33%)	X (67%)				168	587	
UK/IS240	X				Cumbria Coast	X					141	152	(3)
UK/IS250	X				Cumbria Coast	X					3	389	
UK/IS285	X				Luce Bay	X					3	000	(3)
UK/IS400	X				Douglas Harbour, Isle of Man	X					484		
UK/IS420	X				Pet Harbour, Isle of Man	X					4 450		
UK/IS430	X				Pont St Mary, Isle of Man	X					511		
UK/IS440	X				Castletown Bay, Isle of Man	X					249		
UK/IS595	X				Lagan River/Belfast Lough	X (21%)	X (79%)				37	649	
UK/IS650	X				Down Coast	X					9 431		
UK/LU055	X				Somerset Coast	X					2 769		
UK/LU083	X				Avon River	X					292	226	
UK/LU084	X				Avon River	X					18	359	
UK/LU085	X				Avon River	X					54	218	
UK/LU110	X				Taff R./Usk R./Severn Est.	X					571	280	
UK/LU115	X				Severn Estuary	X					6	671	
UK/LU130	X				Neath River/Swansea Bay	X (97%)	X (3%)				792	933	
UK/LU140	X				Usk River	X					114	388	
UK/MA010	X				Portnaghon Bay	X					53	900	
UK/MA017	X				Firth Of Clyde	X					8	955	
UK/MA021	X				Firth Of Clyde	X (65%)	X (35%)				47	224	
UK/MA023	X				Firth Of Clyde	X					315	000	
UK/MA050	X				Firth Of Clyde	X					50	796	
UK/MA501	X				Foyle River	X					12	452	
UK/MA520	X				Bann River	X					30	400	
UK/MA545	X				Foyle River	X					55	289	
UK/MA581	X				Antium Coast	X					552		
UK/PL030	X				Phym/Tamar Rivers	X (4%)	X (40%)	X (56%)	X	X	1	441	
UK/PL051	X				Tamar River	X (86%)	X (14%)				201	611	
UK/PL060	X				Fowey River	X					88	322	
UK/PL075	X				Falmouth Harbour	X (50%)	X (50%)				2	107	
UK/PO070	X				Teign River	X (50%)	X (50%)				16	371	
UK/PO090	X				Teign River	X (50%)	X (50%)				35	290	

## Amounts of Wastes Dumped at Sea in 1995

**Table 3a Details of deposit sites and dumping methods**

OSPAR Commission, 1999:  
Dumping of Wastes at Sea in 1995

OSCOM-codes Deposit site	categories of waste						origin name of watersystem	dredged material type of areas dredged	dredging operation by capital   maintenance	other waste categories	place of origin	dry weight	total quantity (in metric tonnes)	total org. C or similar	notes	
	dredged material	inert material	sewage sludge	fish waste	vessels/ aircraft	Harbour   Estuary   Sea										
UK/TH039	X						Orwell/Stour Rivers	X	X				2 742 297			
UK/TH041	X						Orwell River	X	X				18 202			
UK/TH065	X						Crouch River	X	X				16 119		(5)	
UK/TH073	X						Kent Coast	X	X				5 369		(3)	
UK/TH140	X						Kent Coast	X (78%)	X (22%)				58 965			
UK/TY042	X						Northumberland Coast		X				210 109			
UK/TY070	X						Tyne River	X	X				21 004			
UK/TY081	X						Tyne River	X (9%)	X (91%)				24 005			
UK/TY130	X						Durham Coast	X	X				28 576			
UK/TY150	X						Tees River	X	X				13 131			
UK/TY160	X						Tees River	X (50%)	X (33%)	X (17%)			1 214 589			
UK/TY180	X						Esk River	X (50%)	X (50%)	X			67 741			
UK/TY190	X						North Yorkshire Coast	X	X				6 587			
UK/WI010	X						Ouse River (E.Sussex)	X	X				16 4595			
UK/WI020	X						East Sussex Coast	X	X				42 918			
UK/WI031	X						Audr River	X (94%)	X (6%)	X			74 779			
UK/WI035	X						Aggregate Dredging Area		X	X			3 326			
UK/WI060	X						Soton Water, Iow/W. Portsmouth..	X (38%)	X (49%)	X (14%)			410 142			
UK/WI080	X						Soton Water, Iow/W etc.	X	X	X			17 878			
UK/WI090	X						Itchen River		X	X			3 125			
UK/WI110	X						Poole Harbour	X	X	X			143 217			
UK/FP030	X										Edinburgh STW		5 834	4 580		
UK/FP050	X										Edinburgh STW		10 323	8 104		
UK/HU100	X										Knotonop (Leeds) S		7 576	0		
UK/AS070	X										Walney Is. STW		181	55		
UK/PS071	X										Liverpool etc. ST		57 899	32 494		
UK/SS90	X										Belfast STWs		15 231	0		
UK/MA018	X										Glasgow STWs		53 591	17 653	(3.4)	
UK/PL020	X										Plymouth STWs		1 010	753	(4.5)	
UK/PO030	X										Exeter STW		1 223	1 051	(4.5)	
UK/PO050	X										Tilbury+ Ipswich ST		11 341	4 967	(4.5)	
UK/TH1042	X										Crossness+ Beckton S		105 462	76 691	(4)	
UK/TH1050	X										Newcastle+ Portrack S		17 660	0	(5)	
UK/TY060	X										Southampton ST		8 899	7 084	(4)	
<b>Total</b>													<b>20 550 449</b>	<b>153 450</b>		

## Amounts of Wastes Dumped at Sea in 1995

**Table 3b Total loads (indicate the method of determination in Part II)**

OSCOM-codes in tonnes											in kilograms													
Deposit	Cd	Hg	As	Cr	Cu	Pb	Ni	Zn	Oil	Total PAH	P	CB 28	CB 52	CB 101	CB 118	CB 138	CB 153	CB 180	Total HCB	$\gamma$ -HCH	Diel-HCH	DDT	TBT	other notes
<b>Belgium</b>																								
B/1	3.692	0.696	21.377	60.245	21.766	60.828	35.508	174.906															14.0	
B/1	3.999	0.754	23.154	65.253	23.375	65.884	40.625	189.444															14.0	
B/1	2.128	0.183	12.058	31.081	10.166	39.838	18.914	87.833															6.0	
B/1	7.994	0.688	45.299	119.022	38.194	149.666	71.058	329.975															22.0	
B/3	0.709	0.133	4.102	11.600	4.177	11.672	7.197	33.561															3.0	
B/3	1.667	0.314	9.648	27.191	9.824	27.454	16.928	78.941															6.0	
B/3	0.538	0.046	3.046	8.004	2.568	10.065	4.778	22.190															1.0	
B/3	0.705	0.061	3.995	10.497	3.369	13.200	6.267	29.102															2.0	
B/6	7.358	1.205	36.530	115.548	86.013	202.598	61.401	437.321															41.0	
B/6	5.091	0.959	29.474	83.063	30.010	83.867	51.713	241.151															19.0	
B/9	2.299	0.453	13.208	37.305	13.550	37.868	23.350	108.886															8.0	
B/9	3.485	0.392	18.957	75.889	40.005	90.464	29.551	219.679															18.0	
B/INT/1	0.130	0.060	6.250	18.650	10.630	9.650	3.670	40.070																
B/INT/2	0.120	0.050	4.600	14.950	10.920	8.770	3.390	37.640																
B/INT/3	0.020	0.010	5.860	15.880	9.930	4.300	1.650	19.760																
B/INT/4	0.150	0.040	23.540	74.900	4.890	22.770	9.910	100.510																
B/INT/5	0.020	0.000	3.470	10.390	0.640	2.880	1.270	13.520																
B/INT/6B	0.440	0.080	17.590	52.290	6.670	22.710	8.430	113.760																
B/INT/7	0.000	0.000	0.530	1.560	0.100	0.430	0.190	2.020																
<b>Total</b>	<b>40.5</b>	<b>6.1</b>	<b>282.8</b>	<b>834.2</b>	<b>318.0</b>	<b>864.9</b>	<b>395.8</b>	<b>2280.3</b>														<b>160</b>		
<b>Denmark</b>																								
DK/FRB108	0.011	0.003		0.139	0.771	0.308	0.170	1.387																
DK/FRB116	0.001	0.002			0.027	0.135																		
DK/FRB24																								
DK/NJB13	0.007	0.004	0.073		0.306	0.841	1.339																	
DK/NJB14	0.158	0.061	1.944	7.290	11.542	8.505																		
DK/NJB16	0.099	0.049		3.464	3.959	4.949	0.990																	
DK/RIB01																								
DK/RIB02																								
DK/RIB03	0.044	0.022			5.850	1.814	3.803																	
DK/RIB04	0.044	0.022			5.850	1.814	3.803																	
DK/RIB04	0.300	0.139			24.184	14.290	24.916																	
DK/VIB09	0.128	12.690	10.260		4.995	2.025	3.645																	
DK/VIB10	0.128	12.690	10.260		4.995	2.025	3.645																	
DK/VIB20	0.005	0.001	0.093	0.158	0.475	0.161	0.145	1.183																

## Amounts of Wastes Dumped at Sea in 1995

Table 3b Total loads (indicate the method of determination in Part II)

*OSPAR Commission, 1999:  
Dumping of Wastes at Sea in 1995*



## Amounts of Wastes Dumped at Sea in 1995

**Table 3b Total loads (indicate the method of determination in Part II)**

ISOCEM-codes in tonnes											in kilogramms											
Deposit site	Cd	Hg	As	Cr	Cu	Pb	Ni	Zn	Oil	Total PAH	N	P	CB	CB	CB	CB	Total HCB	$\gamma$ -HCH	Diel-HCH	DDT	TBT	other notes
N/9 0,001	0,001									0,093			28	52	101	118	138	153	180	CB	0,75	(6)
N/10																						
N/11																						
N/12																						
N/13																						
N/14																						
N/15																						
<b>Total</b>	<b>0,0</b>	<b>0,0</b>									<b>0,0</b>	<b>0,0</b>										
<b>Spain</b>																						
E/1	0,580	0,120	1,800	9,020	14,430	27,530	4,500	144,500	0,100				0,0	0,1	0,4	0,0	0,6	0,6	2,4	4,0		
E/2	0,350	0,250	9,570	6,100	14,160	22,530	1,730	63,160	0,380				0,0	0,0	1,1	0,0	7,6	5,5	6,5	20,7		
E/5	0,900	0,930	12,120	8,860	5,710	34,400	7,620	192,000	0,490				0,0	0,4	1,8	0,0	1,9	2,1	0,4	6,6		
E/6	0,000	0,000	0,470	0,960	0,760	0,730	0,500	2,070	0,010				0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,1		
E/8	0,080	0,010	0,340	3,620	2,520	1,810	2,550	8,560	0,040				0,1	0,0	0,2	0,0	0,0	0,1	0,1	0,5		
E/10	0,410	0,690	52,500	9,570	49,900	36,900	2,660	177,000	0,800				0,0	0,6	0,8	0,0	0,5	0,3	0,8	3,0		
E/11	0,040	0,040	5,630	7,340	5,620	8,630	4,780	30,360	0,240				0,0	0,2	0,0	0,2	0,5	0,3	0,2	1,5		
E/12	0,080	0,060	2,680	12,460	6,970	14,900	5,150	21,900	0,280				0,1	0,4	0,7	0,2	1,2	1,7	2,9	7,1		
<b>Total</b>	<b>2,4</b>	<b>2,1</b>	<b>85,1</b>	<b>57,9</b>	<b>100,1</b>	<b>146,3</b>	<b>29,5</b>	<b>638,6</b>	<b>2,3</b>				<b>0</b>	<b>2</b>	<b>5</b>	<b>0</b>	<b>12</b>	<b>10</b>	<b>13</b>	<b>44</b>		
<b>Sweden</b>																						
SWE/1																						
SWE/2																						
SWE/3																						
SWE/4																						
SWE/5																						
SWE/6																						
SWE/7																						
SWE/8																						
SWE/9																						
SWE/10																						
SWE/11																						
SWE/12																						
<b>Total</b>	<b>0,0</b>	<b>0,0</b>	<b>0,7</b>	<b>2,1</b>	<b>1,7</b>	<b>1,1</b>	<b>1,2</b>	<b>5,5</b>														
<b>UK</b>																						
UK/CR023	0,213	0,006	0,391	0,734	0,227	0,360	0,296	1,742														

## Amounts of Wastes Dumped at Sea in 1995

**Table 3b Total loads (indicate the method of determination in Part II)**

OSCOM-codes site	Deposit	Cd	Hg	As	Cr	Cu	Pb	Ni	Zn	Oil	Total PAH	N	P	in kilogrammes						TBT notes
														CB	CB	CB	CB	Total HCB	$\gamma$ -HCH	Diel-HCH
UK/CR030	0.001	0.001	0.021	0.057	0.047	0.047	0.074	0.074	0.382											
UK/CR040	0.001	0.001	0.021	0.066	0.154	0.065	0.146	0.504												
UK/CR050	0.002	0.001	0.019	0.086	0.728	0.099	0.297	1.471												
UK/CR060	0.027	0.035	0.335	0.436	8.138	0.378	4.492	2.396												
UK/CR080	0.003	0.002	0.018	0.306	0.887	0.051	0.356	2.977												
UK/CR110	0.023	0.013	0.444	1.083	2.011	1.294	3.207	8.228												
UK/DV010	0.070	0.051		24.085	11.183	10.727	21.268	40.441												
UK/FI065	0.002	0.000	0.025	0.360	0.042	0.072	0.046	0.834												
UK/FO003	0.002	0.001	0.048	0.085	0.274	0.132	0.650	0.544												
UK/FO020	0.001	0.002	0.065	0.244	0.222	0.248	0.435	0.990												
UK/FO021	0.000	0.002	0.017	0.261	0.277	0.241	0.417	1.272												
UK/FO025	0.000	0.003	0.004	0.912	0.013	0.012	0.065	0.000												
UK/FO036	0.656	2.732	29.754	95.572	58.386	35.935	87.017	176.572												
UK/FO038	0.012	0.023	0.085	0.871	1.094	0.741	2.396	12.758												
UK/FO041	0.007	0.025	0.262	1.153	1.407	0.735	2.418	5.075												
UK/FO044	0.026	0.506	3.084	28.755	21.729	14.182	30.317	56.209												
UK/FO048	0.001	0.001	0.052	0.118	0.357	0.157	0.234	1.480												
UK/FO051	0.001	0.001	0.044	0.172	0.380	0.189	0.268	1.160												
UK/HF035	0.056	0.008	0.513	1.333	10.010	1.526	2.428	26.491												
UK/HU015	0.003	0.002	0.549	0.389	0.313	0.451	1.344											0	1	
UK/HU020	0.516	0.328		124.234	51.569	49.225	119.546	297.694										98	21	
UK/HU030	0.252	0.162		60.958	25.266	24.096	58.588	146.015										48	10	
UK/HU040	0.029	0.016		3.532	1.968	1.261	4.289	9.082										13	2	
UK/HU041	0.011	0.006		1.348	0.751	0.481	1.637	3.466										5	1	
UK/HU060	0.415	0.291		106.412	43.831	41.512	100.142	252.323										80	18	
UK/HU080	1.701	1.082		409.669	170.051	162.322	394.209	981.659										325	70	
UK/HU081	0.051	0.009		14.446	4.260	9.631	4.769	37.505										21	5	
UK/HU090	0.116	0.069		28.286	11.421	11.927	25.536	68.311										0	0	
UK/HU111	0.001	0.000		0.266	0.082	0.169	0.078	0.425										1	0	
UK/HU139	0.004	0.002		0.989	0.321	0.488	0.797	1.939										4	0	
UK/HU140	0.002	0.001		0.446	0.210	0.245	0.424	1.316										4	0	
UK/HU141	0.002	0.001		0.476	0.224	0.262	0.452	1.404										4	0	
UK/HU150	0.000	0.000		0.132	0.141	0.067	0.371	0.737										0	0	
UK/HU160	0.012	0.016		3.406	4.205	1.507	2.608	6.285										6	1	
UK/IS040	0.032	0.036		11.698	4.200	6.244	10.101	25.633										2	2	
UK/IS110	0.056	0.089		6.087	3.965	1.726	6.763	27.915										4	0	
UK/IS120	0.004	0.011		0.780	0.511	0.272	2.437	2.660										0	0	
UK/IS128	0.001	0.002		0.225	0.084	0.110	0.260	1.254												

## Amounts of Wastes Dumped at Sea in 1995

Table 3b Total loads (indicate the method of determination in Part II)

OSCOM codes in tonnes site	in kilogramms												TBT other notes							
	Deposit	Cd	Hg	As	Cr	Cu	Pb	Ni	Zn	Oil	Total PAH	N	CB	CB	CB	Total HCB	$\gamma$ - HCH	Diel- DDT	TBT	
UK/IS140	0.333	0.987		67.826	44.445	23.785	209,014	235,775	3,041										305	0
UK/IS145	0.024	0.038		2,640	1,719	0.748	2,953	12,106												
UK/IS170	0.028	0.111		13,366	2,785	4,177	6,869	25,526											0	0
UK/IS192	0.000	0.002		0.142	0.056	0.061	0.115	0.416											4	2
UK/IS200	0.014	0.055		5,514	2,378	2,550	4,155	13,439												
UK/IS205	0.011	0.009		3,209	0.989	1,714	1,692	7,561											2	1
UK/IS240	0.102	0.037		11,438	4,137	3,164	5,841	21,416											1	0
UK/IS250	0.001	0.000		0.142	0.062	0.086	0.129	0.351												
UK/IS285	0.000	0.000	0.003	0.016	0.007	0.025	0.008	0.045												
UK/IS400	0.001	0.000	0.007	0.029	0.104	0.016	0.140	0.175												
UK/IS420	0.008	0.001	0.054	0.261	0.825	0.140	1,342	1,678												
UK/IS530	0.001	0.000	0.007	0.031	0.110	0.017	0.148	0.184												
UK/IS540	0.000	0.000	0.001	0.013	0.016	0.005	0.087	0.110												
UK/IS595	0.049	0.016		1,382	1,198	0.895	1,411	5,998												
UK/IS650	0.008	0.001		0.215	0.136	0.111	0.247	0.948												
UK/LJ055	0.001	0.001		0.182	0.082	0.100	0.187	0.558											0	0
UK/LJ083	0.041	0.041		8,115	3,550	4,275	9,275	26,158												
UK/LJ084	0.003	0.003		0.510	0.223	0.269	0.583	1,643												
UK/LJ085	0.008	0.008		1,506	0.659	0.793	1,721	4,833												
UK/LJ110	0.286	0.346		41,862	24,462	21,447	50,713	127,417										7	5	
UK/LJ115	0.001	0.003		0.345	0.179	0.158	0.307	1,162										0	0	
UK/LJ130	0.422	0.319		44,184	25,888	19,818	55,674	146,701	26,873									49	139	
UK/LJ140	0.006	0.042		6,234	5,695	3,379	7,281	24,469	0,182									3	1	
UK/MA010	0.000	0.002	0.003	0.382	0.232	0.128	0.305	0,775												
UK/MA017	0.022	0.014	0.254	5,850	2,808	1,001	3,806	11,044												
UK/MA021	0.063	0.063		15,750	9,450	5,040	12,690	31,500												
UK/MA023	0.019	0.009	0.208	0.974	0.702	2,857	0,917	4,104	5,184											
UK/MA050	0.032	0.006		0.017	0.012	0.125	0,034	0,077	9,196											
UK/MA501	0.006	0.003		0.040	0.034	0.158	0,024	0,130												
UK/MA520	0.143	0.028		0.074	0.055	0.555	0,152	0,342												
UK/MA535	0.000	0.002	0.059	0.079	0.223	0,047	0,268	0,462										1	0	
UK/PL031	0.132	0.158		10,435	26,775	8,360	40,762	44,095										4	1	
UK/PL060	0.009			1,830	4,059	1,338	2,930	8,576										3	1	
UK/PL075	0.002			0.080	1,065	0,273	0,519	1,162												
UK/PO070	0.001			0.126	0,054	0,090	0,126	0,572												
UK/PO090	0.001			0.271	0,116	0,194	0,271	1,125												

## Amounts of Wastes Dumped at Sea in 1995

**Table 3b Total loads (indicate the method of determination in Part II)**

Deposit site	OSCOM-codes in tonnes										in kilograms												
	Cd	Hg	As	Cr	Cu	Pb	Ni	Zn	Oil	Total PAH	P	CB 28	CB 52	CB 101	CB 118	CB 138	CB 153	Total HCB	γ-HCH	Diel-HCH	DDT	TBT	other notes
UK/TH039	0.438	0.192			168.561	50.055	80.854	73.771	218.078													160	11
UK/TH041	0.010	0.005			1.428	1.428	0.668	1.186	3.069													3	1
UK/TH065	0.001	0.002			0.594	0.249	0.283	0.596	1.131													1	0
UK/TH073	0.001	0.001			0.231	0.158	0.134	0.158	0.583														
UK/TH140	0.004	0.010	0.018		1.542	0.588	0.560	0.943	2.647	3.796												2	1
UK/TY042	0.021	0.054			9.057	7.766	6.342	13.042	21.838													1	0
UK/TY070	0.018	0.008			0.861	1.050	0.568	3.134	6.552													0	0
UK/TY081	0.214	0.094	0.281		10.391	12.273	6.810	36.680	75.956													11	2
UK/TY130	0.002	0.004			1.004	0.772	0.618	1.158	3.051													3	1
UK/TY150	0.005	0.010			0.847	0.824	0.468	1.467	2.984														
UK/TY160	0.244	0.228			50.593	36.020	14.922	59.273	136.205													7	2
UK/TY180	0.004	0.011			2.290	1.813	1.527	2.004	8.110													2	1
UK/TY190	0.000	0.001			0.240	0.150	0.130	0.359	0.649													1	0
UK/WI010	0.020	0.019			7.262	2.622	2.420	3.251	10.909													9	0
UK/WI020	0.005	0.003			1.073	0.483	0.452	0.490	1.763													1	0
UK/WI031	0.006	0.003			1.568	1.055	1.652	2.440	2.433														
UK/WI035	0.000	0.000			0.069	0.107	0.028	0.016	0.244													2	0
UK/WI060	0.058	0.103	0.040		18.613	18.268	8.375	15.284	39.179	5.477												9	3
UK/WI080	0.003	0.003	0.010		0.874	0.610	0.383	0.687	1.784													1	0
UK/WI090	0.001	0.001			0.215	0.266	0.091	0.248	0.581													1	0
UK/WI110	0.086	0.082	0.257		2.729	2.897	1.228	5.815	10.948													2	0
UK/FO030	0.024	0.012	0.014		0.635	1.862	0.151	1.651	2.892													1	0
UK/FO050	0.042	0.022	0.024	1.125	3.294	0.268	2.921	5.117															
UK/HU100	0.045	0.011	0.060	2.561	2.465	0.566	3.885	5.347															
UK/IS070	0.000	0.000		0.005	0.043	0.005	0.075	0.133	0.114	0.015													
UK/IS071	0.318	0.128		27.957	36.512	5.010	24.436	76.285	# #####	# #####											30	0	
UK/IS090	0.025	0.021		6.446	5.819	0.859	2.308	23.192															
UK/MA018	0.110	0.047	0.426	23.013	20.175	3.326	13.350	44.134															
UK/PL020	0.002	0.003	0.009	0.063	0.283	0.045	0.211	0.697	58.053	20.807											0	0	
UK/PO030	0.010	0.005	0.007	0.298	0.600	0.117	0.426	1.932	58.238	23.047											0		
UK/PO050	0.000	0.000	0.000	0.005	0.010	0.002	0.006	0.027	1.231	0.330													
UK/TH042	0.019	0.019	0.884	3.156	0.494	1.439	5.471	299.107	206.463												1	0	
UK/TH050	0.460	0.350	11.370	66.783	6.197	48.515	115.251															0	
UK/TY060	0.028	0.027	0.458	5.910	0.563	2.946	8.155															0	
UK/WI060	0.011	0.017	0.315	5.258	0.268	0.969	4.615	126.985	255.214														
<b>Total</b>	8.3	9.4	36.9	1530.0	897.9	633.3	1637.9	3810.7	1296.2	0.0	4547.0	1860.4	0	0	0	0	0	0	0	2	2	319	

## Amounts of Wastes Dumped at Sea in 1995

**Table 3c Environmental relevant loads (indicate principle and method of calculation in Part II)**

OSCOM-codes in tonnes											in kilograms											
Deposit site	Cd	Hg	As	Cr	Cu	Pb	Ni	Zn	Oil	Total PAtI	N	P	CB	CB	CB	CB	Total HCB	$\gamma$ -HCH	Diel-HCH	DDT	TBT	other notes
<b>Belgium</b>																						
B/1																						
B/1																						
B/1																						
B/3																						
B/3																						
B/3																						
B/3																						
B/6																						
B/6																						
B/9																						
B/9																						
B/INT/1																						
B/INT/2																						
B/INT/3																						
B/INT/4																						
B/INT/5																						
B/INT/6B																						
B/INT/7																						
<b>Total</b>																						
<b>Denmark</b>																						
DK/FRB08																						
DK/FRB16																						
DK/FRB24																						
DK/NIL03																						
DK/NIL34																						
DK/NIL36																						
DK/RB01																						
DK/RB02																						
DK/RB03																						
DK/RB04																						
DK/RB04																						
DK/VIB09																						
DK/VIB10																						
DK/VIB20																						

## Amounts of Wastes Dumped at Sea in 1995

**Table 3c Environmental relevant loads (indicate principle and method of calculation in Part II)**

OSCOM-codes in tonnes											in kilogramms												
Deposit site	Cd	Hg	As	Cr	Cu	Pb	Ni	Zn	Oil	Total PAH	P	CB	CB	CB	CB	Total CB	CB	Total HCB	$\gamma$ -HCH	Diel-HCH	DDT	TBT	Other notes
DK/V/SJ9											28	52	101	118	138	153	180	CB					
DK/AAR20																							
DK/AAR20																							
<b>Total</b>																							
<b>Germany</b>																							
D:10																							
D:12																							
D:13																							
D:14																							
D:15																							
D:17																							
D:18																							
D:19																							
D:20																							
D:22																							
D:25																							
D:30																							
D:32																							
D:34																							
D:36																							
D:37																							
D:41																							
D:42																							
D:43																							
D:45																							
<b>Total</b>																							
<b>Iceland</b>																							
IS:03																							
IS:09																							
IS:10																							

## Amounts of Wastes Dumped at Sea in 1995

Table 3c Environmental relevant loads (indicate principle and method of calculation in Part II)

*OSPAR Commission, 1999:  
Dumping of Wastes at Sea in 1995*

OSCOM-codes in tonnes													in kilograms									
Deposit site	Cd	Hg	As	Cr	Cu	Pb	Ni	Zn	Oil	Total PAH	N	P	CB	CB	CB	CB	Total HCB	$\gamma$ -HCH	Diel- DDT	TBT	other notes	
IS/23											28	52	101	118	138	153	180	CB				
IS/25																						
IS/51																						
IS/53																						
IS/58																						
IS/78																						
<b>Total</b>																						
<b>Ireland</b>																						
Ir/I																						
Ir/I6																						
Ir/I9																						
Ir/I7																						
Ir/I20																						
Ir/I22																						
Ir/I23																						
Ir/I26																						
Ir/I27																						
<b>Total</b>																						
<b>The Netherlands</b>																						
NL/5	6.404	1.517	34.209	0.000	98.314	231.831	0.000	877.601	1681.26	12.692	ND	ND	20	22	27	18	33	31	19	14	19	8
NL/6	0.014	0.007	0.160	0.000	0.000	1.113	0.000	3.756	5.260	0.048	ND	ND	0	0	0	0	0	0	0	0	0	ND
NL/7	0.566	0.169	7.519	0.000	0.000	40.525	0.000	96.379	174.199	1.547	ND	ND	9	7	5	8	7	2	2	5	0	ND
NL/10	0.000	0.000	0.116	0.000	0.003	0.030	0.024	0.000	0.000	0.034	ND	ND	0	0	0	0	0	0	0	0	0	ND
NL/11	0.848	0.087	14.993	14.132	27.472	49.478	2.786	59.387	0.000	3.148	ND	ND	1	3	6	3	8	8	5	1	1	ND
NL/13	0.383	0.200	2.766	0.000	0.972	17.983	0.000	39.508	113.620	0.601	ND	ND	2	0	1	0	2	0	0	0	0	ND
NL/14	0.000	0.074	1.899	0.000	10.644	13.162	0.000	28.144	42.741	0.563	ND	ND	2	2	2	2	2	2	2	2	2	ND
NL/15	0.045	0.073	3.145	0.000	0.000	3.157	0.000	0.005	182.339	0.649	ND	ND	2	2	2	3	3	0	0	0	0	ND
<b>Total</b>	8.3	2.1	64.9	14.1	137.4	357.3	2.8	1104.8	2199.4	19.3	ND	ND	36	36	45	30	56	55	28	19	27	11
<b>Norway</b>																						
N/1																						
N/2																						
N/3																						
N/5																						
N/6																						
N/6																						
N/8																						

## Amounts of Wastes Dumped at Sea in 1995

**Table 3c Environmental relevant loads (indicate principle and method of calculation in Part II)**

OSCOM-codes in tonnes													in kilograms									
Deposit site	Cd	Hg	As	Cr	Cu	Pb	Ni	Zn	Oil	Total PAH	N	P	CB	CB	CB	CB	Total HCB	$\gamma$ -HCH	Diel-HCH	TBT drin	other notes	
N/9													28	52	101	118	138	153	180	CB		
N/9																						
N/10																						
N/11																						
N/11																						
N/12																						
N/12																						
N/13																						
N/13																						
N/14																						
N/14																						
N/15																						
Total																						
Spain	E/1																					
	E/2																					
	E/5																					
	E/6																					
	E/8																					
	E/10																					
	E/11																					
	E/12																					
Total																						
Sweden	SWE/1																					
	SWE/2																					
	SWE/3																					
	SWE/4																					
	SWE/5																					
	SWE/6																					
	SWE/7																					
	SWE/8																					
	SWE/9																					
	SWE/10																					
	SWE/11																					
	SWE/12																					
Total																						
UK	UK/CR023																					

## Amounts of Wastes Dumped at Sea in 1995

Table 3c Environmental relevant loads (indicate principle and method of calculation in Part II)

OSCOM-codes Deposit	in tonnes										in kilogramms										
	Cd	Hg	As	Cr	Cu	Pb	Ni	Zn	Oil	Total PAH	N	P	CB	CB	CB	CB	Total HCB	$\gamma$ - HCH	Diel- DDT	TBT	other notes
UK/CR030										28	28	52	101	118	138	153	180	CB			
UK/CR040																					
UK/CR050																					
UK/CR060																					
UK/CR080																					
UK/CR110																					
UK/DV010																					
UK/FE065																					
UK/FO005																					
UK/FO020																					
UK/FO021																					
UK/FO025																					
UK/FO036																					
UK/FO038																					
UK/FO041																					
UK/FO044																					
UK/FO048																					
UK/FO051																					
UK/HE035																					
UK/HU015																					
UK/HU020																					
UK/HU030																					
UK/HU040																					
UK/HU041																					
UK/HU060																					
UK/HU080																					
UK/HU081																					
UK/HU090																					
UK/HU111																					
UK/HU139																					
UK/HU140																					
UK/HU141																					
UK/HU150																					
UK/HU160																					
UK/IS040																					
UK/IS110																					
UK/IS120																					
UK/IS128																					

## Amounts of Wastes Dumped at Sea in 1995

**Table 3c Environmental relevant loads (indicate principle and method of calculation in Part II)**

OSCOM-codes in tonnes site	in kilograms												other notes									
	Deposit	Cd	Hg	As	Cr	Cu	Pb	Ni	Zn	Oil	Total PAH	N	P	CB	CB	CB	CB	Total HCB	$\gamma$ - HCH	Diel- DDT	TBT	
UKIS140											28	28	52	101	118	138	153	180	CB			
UKIS145																						
UKIS170																						
UKIS192																						
UKIS200																						
UKIS205																						
UKIS240																						
UKIS250																						
UKIS285																						
UKIS400																						
UKIS420																						
UKIS430																						
UKIS440																						
UKIS595																						
UKIS650																						
UKLU055																						
UKLU083																						
UKLU084																						
UKLU085																						
UKLU110																						
UKLU115																						
UKLU130																						
UKLU140																						
UKMA010																						
UKMA017																						
UKMA021																						
UKNA023																						
UKNA050																						
UKNA501																						
UKNA520																						
UKMA545																						
UKMA581																						
UKPL030																						
UKPL031																						
UKPL060																						
UKPL075																						
UKPO070																						
UKPO090																						

## Amounts of Wastes Dumped at Sea in 1995

**Table 3c Environmental relevant loads (indicate principle and method of calculation in Part II)**

OSCOM-codes Deposit site	in tonnes										in kilograms										
	Cd	Hg	As	Cr	Cu	Pb	Ni	Zn	Oil	Total PAH	N	P	CB	CB	CB	CB	Total HCB	γ-HCH	Diel- DDT	TBT	other notes
UK/TH039											28	52	101	118	138	153	180	CB			
UK/TH041																					
UK/TH065																					
UK/TH073																					
UK/TH140																					
UK/TY042																					
UK/TY070																					
UK/TY081																					
UK/TY150																					
UK/TY150																					
UK/W010																					
UK/W020																					
UK/W031																					
UK/W035																					
UK/W060																					
UK/W080																					
UK/W090																					
UK/W110																					
UK/F0020																					
UK/F0030																					
UK/HU100																					
UK/IS070																					
UK/IS071																					
UK/IS590																					
UK/MA018																					
UK/PL020																					
UK/PO030																					
UK/PO050																					
UK/TH042																					
UK/TH050																					
UK/TY060																					
<b>Total</b>																					

## ADDITIONAL INFORMATION

(Referring to Part II of the Formats for the Annual Reporting of Amounts of Wastes Dumped at Sea adopted at PRAM 1995)

### 1. Deposit Site

#### Spain

The co-ordinates of the deposit site E/8 (Villagarcía) have slightly changed in 1994 from 42°27' N, 009°07' W to 42°25,3' N; 009° 0,55' W, but the OSCOM code will remain the same.

### 2. Method of determination

#### Belgium

Samples are being taken at several times of the year. Analysis is carried out on the whole sediment (< 2 mm). The mean concentration of the contaminants is being calculated. This average concentration is multiplied by the quantity dredged in order to obtain the total load.

#### Spain

The following methods of determination have been used:

##### *Grain size fraction*

The analysis have been carried out on grain size fractions smaller than 2 mm, except for the analysis of heavy metals for the deposit sites E/6 (Ferrol) and E/12 (Cádiz), which were carried out on a smaller than 0,063 mm fraction.

##### *Sample preparation*

Drying of sample at 60°C during 24h → sieving of sample with a 2 mm sieve → separation of fraction smaller than 0,063 mm, using water and a 0,063 mm plastic sieve → homogenisation and grinding of sample in an agate mortar → determination of humidity by drying at 105°C up to constant weight.

##### *Heavy metals analysis*

*For Cd, Pb, Cu, Zn, Ni and Cu:*

Acid digestion with nitric acid in a microwave oven → quantitative determination by atomic absorption spectrophotometry, in flame or in graphite chamber, depending on the sample concentration.

*for As:*

Acid digestion in microwave oven with nitric acid → previous reduction of the sample → determination by hydride generation matched to an atomic absorption spectrophotometer.

for Hg:

Acid digestion in microwave oven with nitric acid → determination by cold steam technique matched to atomic absorption spectrophotometry.

#### **Poly-chlorinated-biphenyls**

Extraction of homogenised and grinded sample with a methylene chloride:hexane (1:1) mixture → extract concentration and passing through an anhydrous sodium sulphate column → sulphur elimination by purification with powder of copper → extract purification in column, avoiding the organochlorated compounds with a mixture of ethylic ether in hexane at successive concentrations of 6, 15 and 50%, ending with pure hexane → quantitative determination by gas chromatography with electron capture detector, using an HP-S capillary column of 0,22 mm inner diameter.

#### **Polyaromatic hydrocarbons**

Extraction by means of decantation, mixture with acetone:hexane (1:1) and ultrasounds → purification by means of decantation with salt saturated with sodium sulphate → determination using gas chromatography with a 60 mm capillary column, BOD5 and flame ionisation detector → confirmation, when necessary, by means of mass chromatography.

#### **Organic matter**

Two type of techniques have been used:

*As volatile solids:*

Drying of sample at 105°C, grinding in a mortar and combustion in muffle at 550°C up to constant weight → determination of total quantity as follows:

$$TOC \text{ mass (tn)} = \frac{0,35 \times \text{Volatile solids concentration (\%)} \times \text{dumped mass (tn)}}{100}$$

(this formula is being used in "Recommendations for the management of dredged material in the ports of Spain")

*As Total organic carbon (TOC):*

Drying at 105°C, elimination of inorganic carbon with HCL and determination by means of calcination and detection of CO<sub>2</sub> with an infrared detector (Elementary analysis) → determination of the total quantity as follows:

$$TOC \text{ mass (tn)} = \frac{TOC \text{ concentration (\%)} \times \text{dumped mass (tn)}}{100}$$

## **UK**

All analyses of dredged material on <2mm fraction. Methods of determination as specified in reports listed below:

Allchin, C.A., Kelly,C.A. and Portmann, J.P. (1989) Methods of analysis for chlorinated hydrocarbons in marine and other samples. Aquatic Environmental Protection: Analytical Methods, MAFF Directorate of Fisheries Research, Lowestoft, (6), 25 pp.

Jones,B.R. and Laslett,R.E. (1994) Methods for analysis of trace metals in marine and other samples. Aquatic Environmental Protection: Analytical Methods, MAFF Directorate of Fisheries Research, Lowestoft, (11), 29 pp.

Law,R.J., Fileman,T.W. and Portmann,J.P. (1988) Methods of analysis of hydrocarbons in marine and other samples. Aquatic Environmental Protection: Analytical Methods, MAFF Directorate of Fisheries Research, Lowestoft, (2), 25 pp.

Waldock,M.J., Waite,M.E., Miller,D., Smith,D.J. and Law,R.J. (1989) The determination of total tin and organotin compounds in environmental samples. Aquatic Environmental Protection: Analytical Methods, MAFF Directorate of Fisheries Research, Lowestoft, (4), 25 pp.

## **3. CALCULATION OF ENVIRONMENTALLY RELEVANT LOADS**

[no information received]

## **4. TOXICITY**

[no information received]

## **5. OTHER RELEVANT INFORMATION**

[no information received]

## FOOTNOTES TO ALL TABLES

**Table 1**

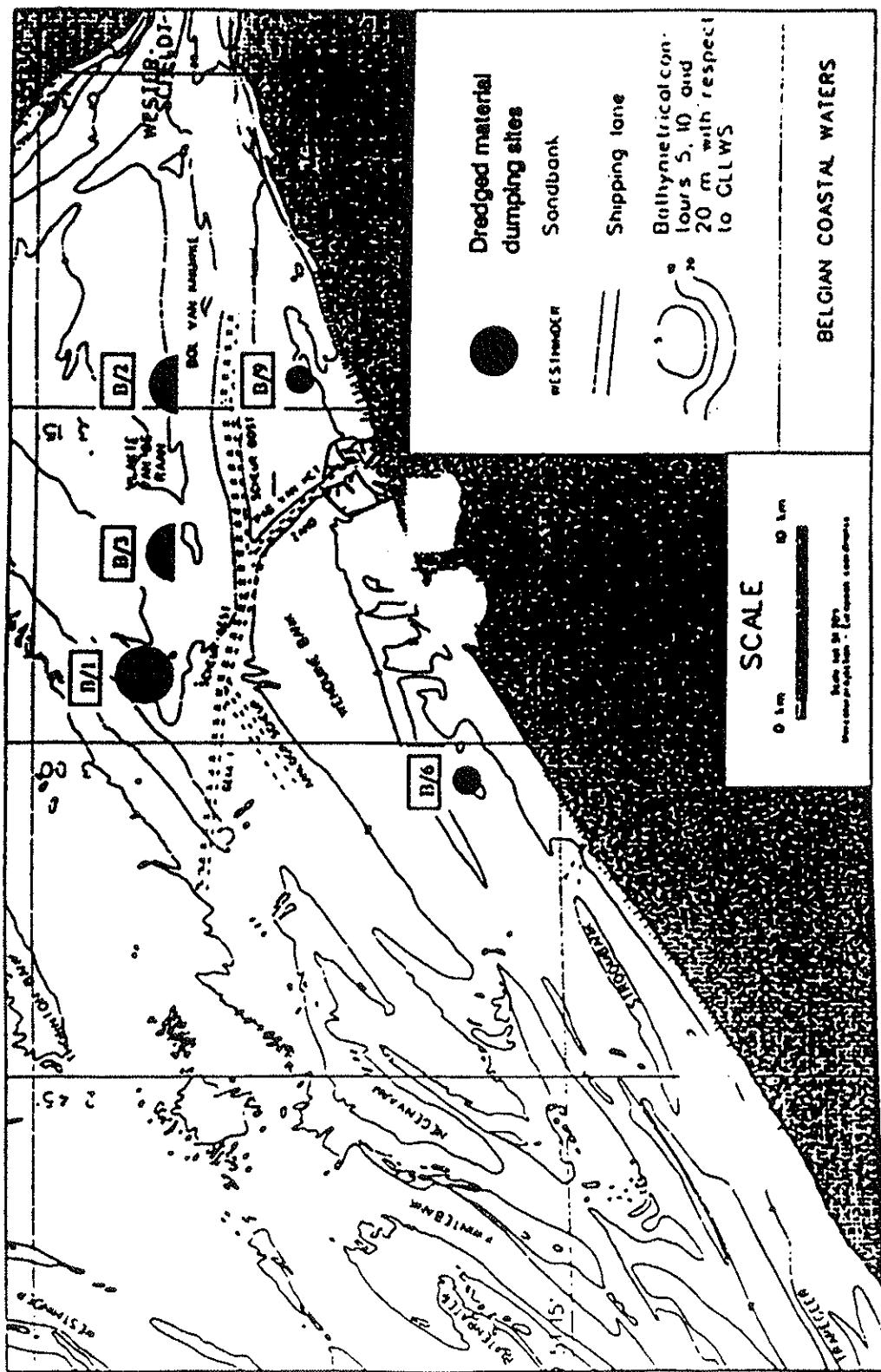
- (1) No permits issued, however, dumping operations were carried out under the control of national authorities.
- (2) There is a general permit in Iceland for disposing dredged material when the contamination of the sediment does not exceed given threshold values.
- (3) It is an official policy in Iceland not to permit any dumping of fish waste from factories on land. This particular dumping operation was carried out in a *force majeure* situation, caused by a snow avalanche which damaged a fish meal factory on Iceland's east coast. Because of the high risk of additional avalanches, and with road access to the area blocked by snow, it was not possible to process the capelin in the storage tanks of the factory. The area was regarded as extremely unsafe working environment (*inter alia* due to the development of poisonous gases caused by fermentation) and a permit was granted by the authorities to dump the protein part of the capelin (138 tons dry weight) 6 nautical miles from the coast. The fish oil was separated and utilised, no additives or preservatives had been added to the capelin when stored in the tanks. When licensing the permit, the authorities stressed that this permit was granted because of unique circumstances and should not by any means be regarded as precedence for future activities.
- (4) All dumping operations were carried out in internal Norwegian waters.
- (5) Norway reported in some cases amounts in m<sup>3</sup>. In such cases the following calculation factors were used:  
1,2 tonnes dredged material / m<sup>3</sup> of dredged material
- (6) No information was available in Norway as regards the weight of the 5 vessels. However they were all under 150 ft. long, 2 were under 50 ft long.
- (7) UK licensed tonnages are usually on a wet weight basis. These are the estimated dry weight equivalents.
- (8) In addition to the licensed sewage sludge tonnage in Table 1, an estimated 15 231 tonnes dry weight equivalent (285 229 tonnes wet weight) was permitted for disposal at sea under an administrative authorisation from the Department of the Environment for Northern Ireland in 1995.
- (9) 450 000 tonnes minestone (equivalent to 500 000 tonnes wet weight) were licensed for deposit in the sea in a permit issued in 1995. 187 802 tonnes minestone was deposited directly onto the intertidal zone in 1995 but is not dumping under the terms of the Convention.
- (10) This permit was for the Brent Spar. The permit was not utilised.

**Table 2**

- (1) The following level 2 concentrations apply in Norway:  
PAH = 20 mg/kg, PCB = 0,300 mg/kg.  
The maximum measured concentration of contaminants in the dredged material were:  
PAH < 34,86 mg/kg and PCB < 0,538 mg/kg

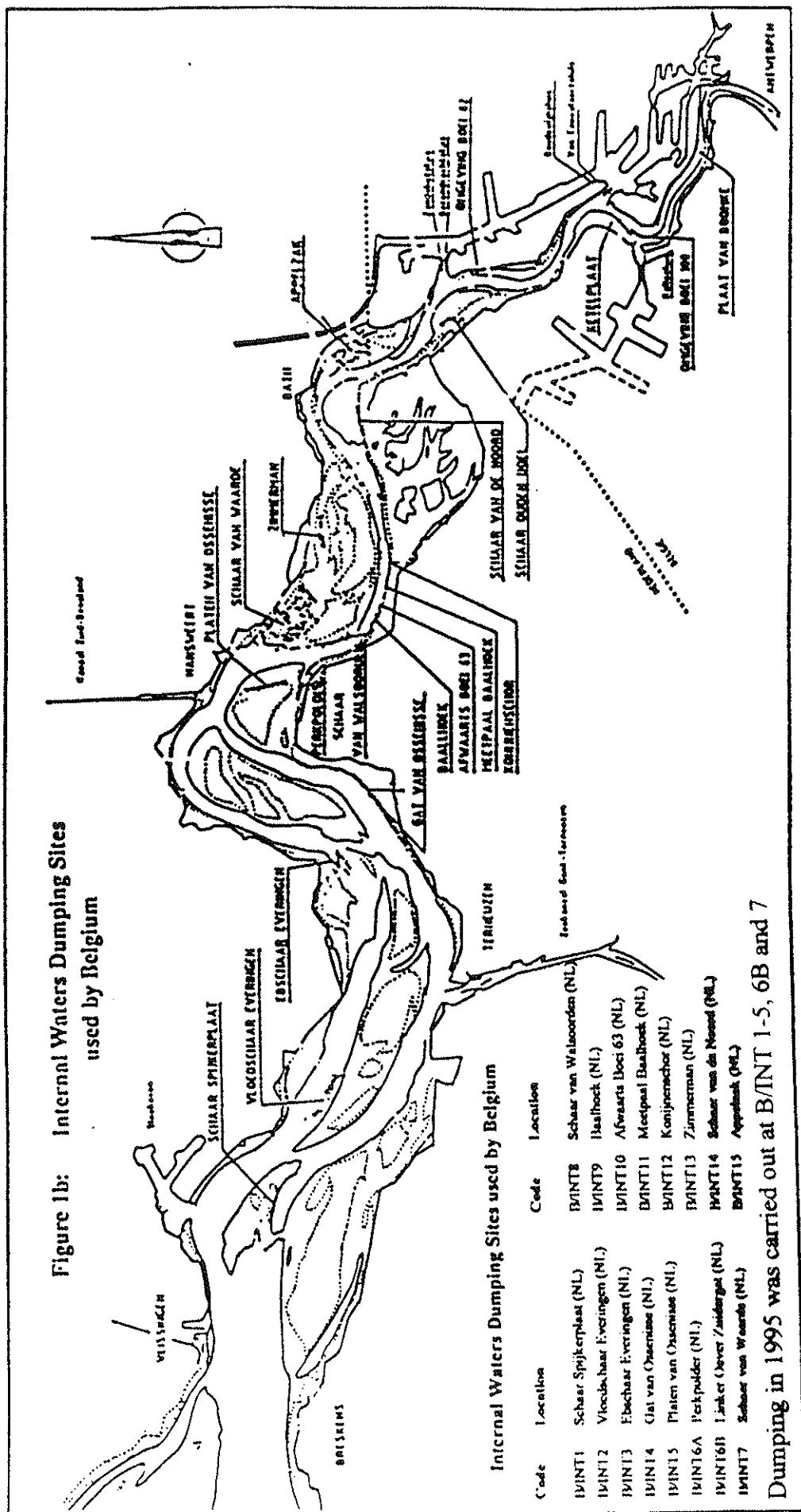
**Tables 3a, 3b, 3c**

- (1) The material dredged in Icelandic waters is usually bottom sediment consisting of clay, gravel and sand. The chemical composition of the material was not analysed. Dumping operations are usually carried out within 2 nautical miles from the harbours. The selection of dumping sites takes into account that the sediment to be dumped should have similar characteristics than that occurring at the site. Amounts dumped have been reported in tonnes dry weight. Wet weight values, which Iceland reported in previous years, can be converted by multiplying with a conversion factor of 0,697.
- (2) Prior to dumping of vessels all chemicals and removable parts were removed. No information was available as regards the weight of the 5 vessels. However they were all under 150 ft. long, 2 were under 50 ft long.
- (3) Internal Waters site
- (4) For sewage sludge, data under "Total Organic Carbon" is the organic matter content derived by loss-on-ignition
- (5) Data on other contaminants is available from Ireland and the UK
- (6) Norway calculated the total loads from samples of the dredged material which were analysed to find the concentrations of different substances. For the total loads, the concentrations were multiplied by the amounts dumped.



**Figure 1a** Approximate positions of the dumping sites for dredged material used by Belgium in 1995

**Figure 1b:** Internal Waters Dumping Sites used by Belgium



Dumping in 1995 was carried out at B/T/N/T 1-5, 6B and /

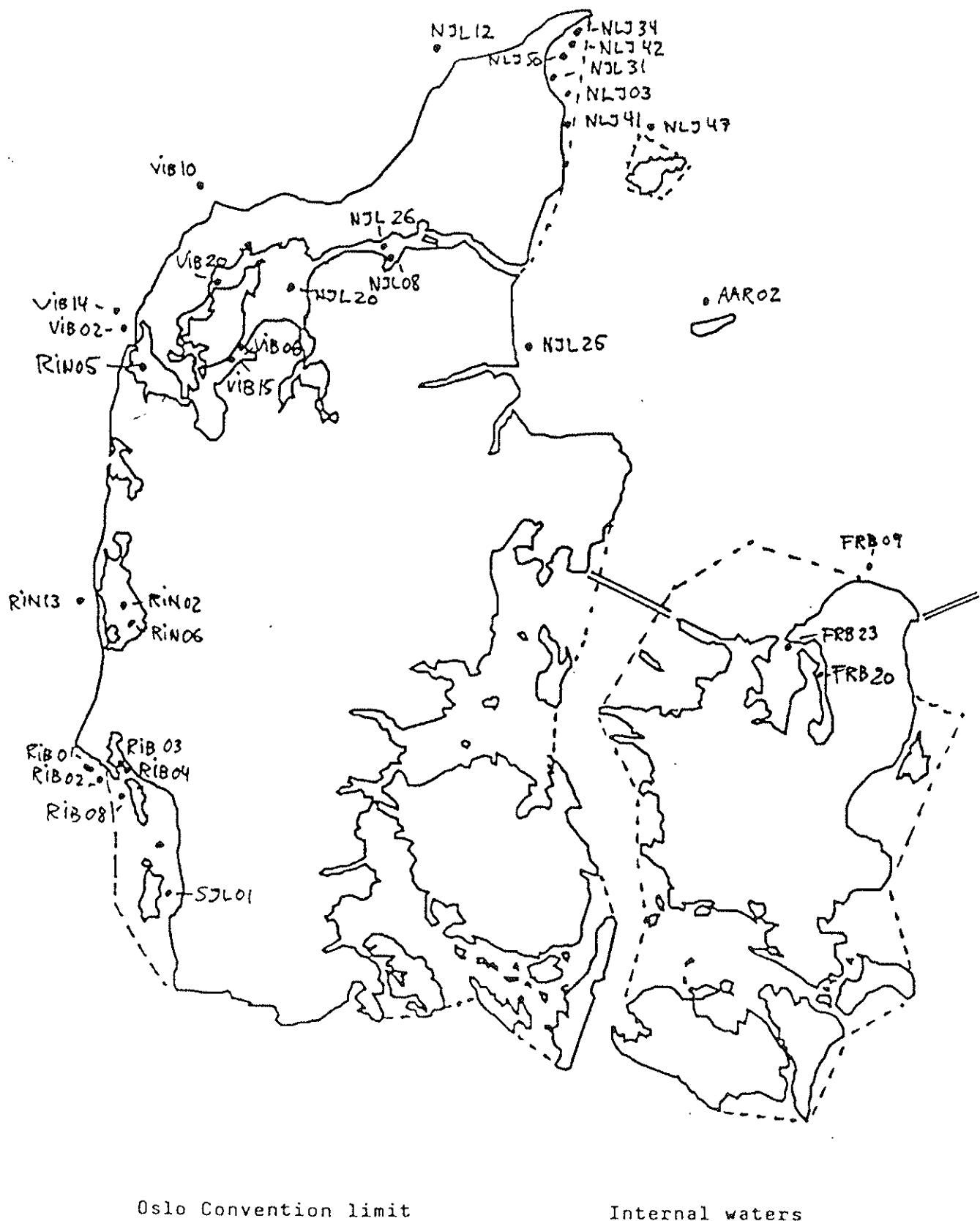
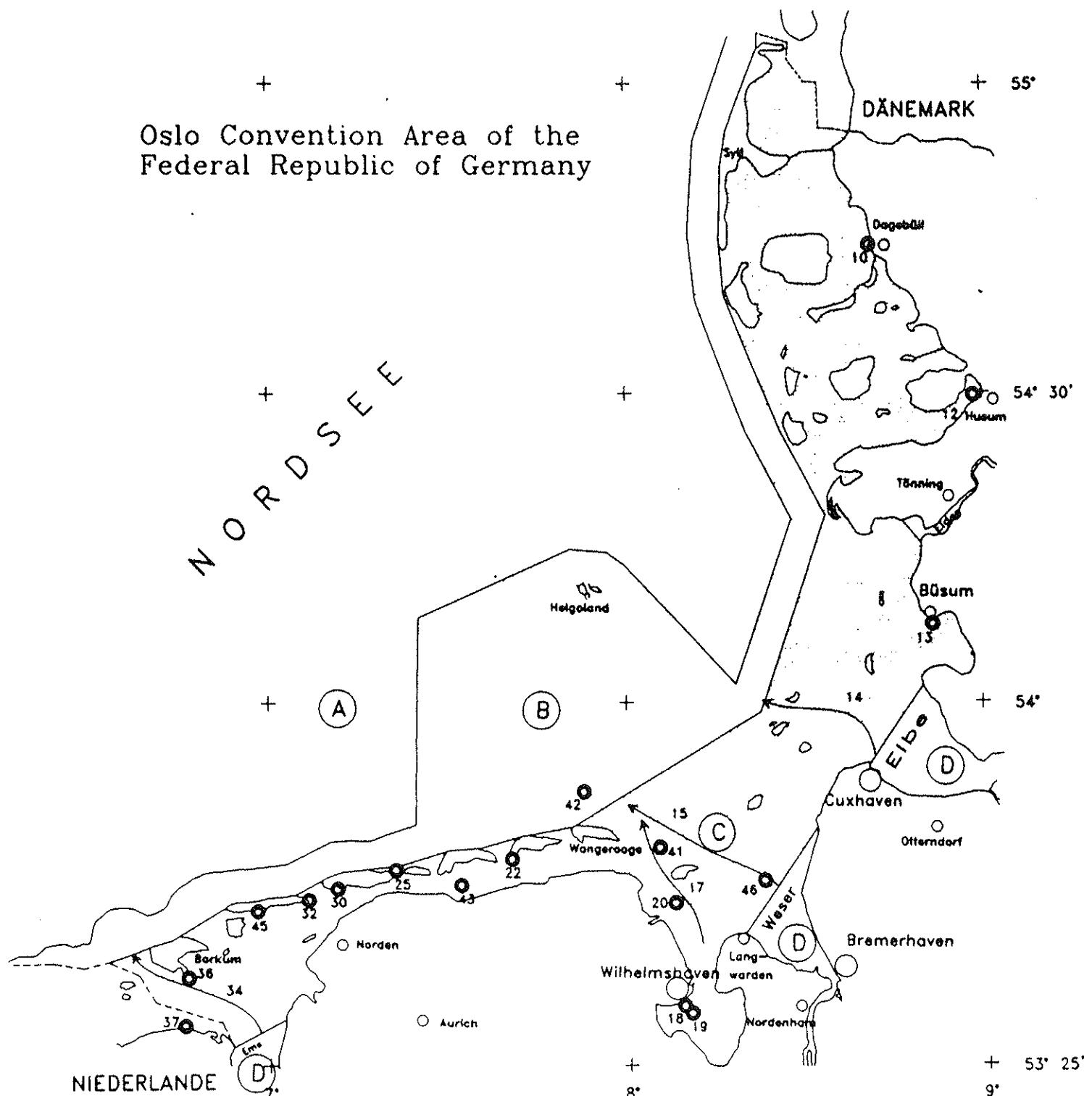


Figure 2 Approximate positions of the dumping sites for dredged material used by Denmark in 1995



### Dumping of dredged materials

A, B = Convention waters

C, D = Internal waters

● = sites of dumping of dredged materials (1995)

Figure 3: Approximate positions of the dumping sites for dredged materials used by Germany in 1995

D/10, D/12-D/15, D/17-D/20, D/22, D/25, D/30, D/32, D/34, D/36, D/37, D/41-D/43, D/45, D/46

## Disposal of dredged material 1995

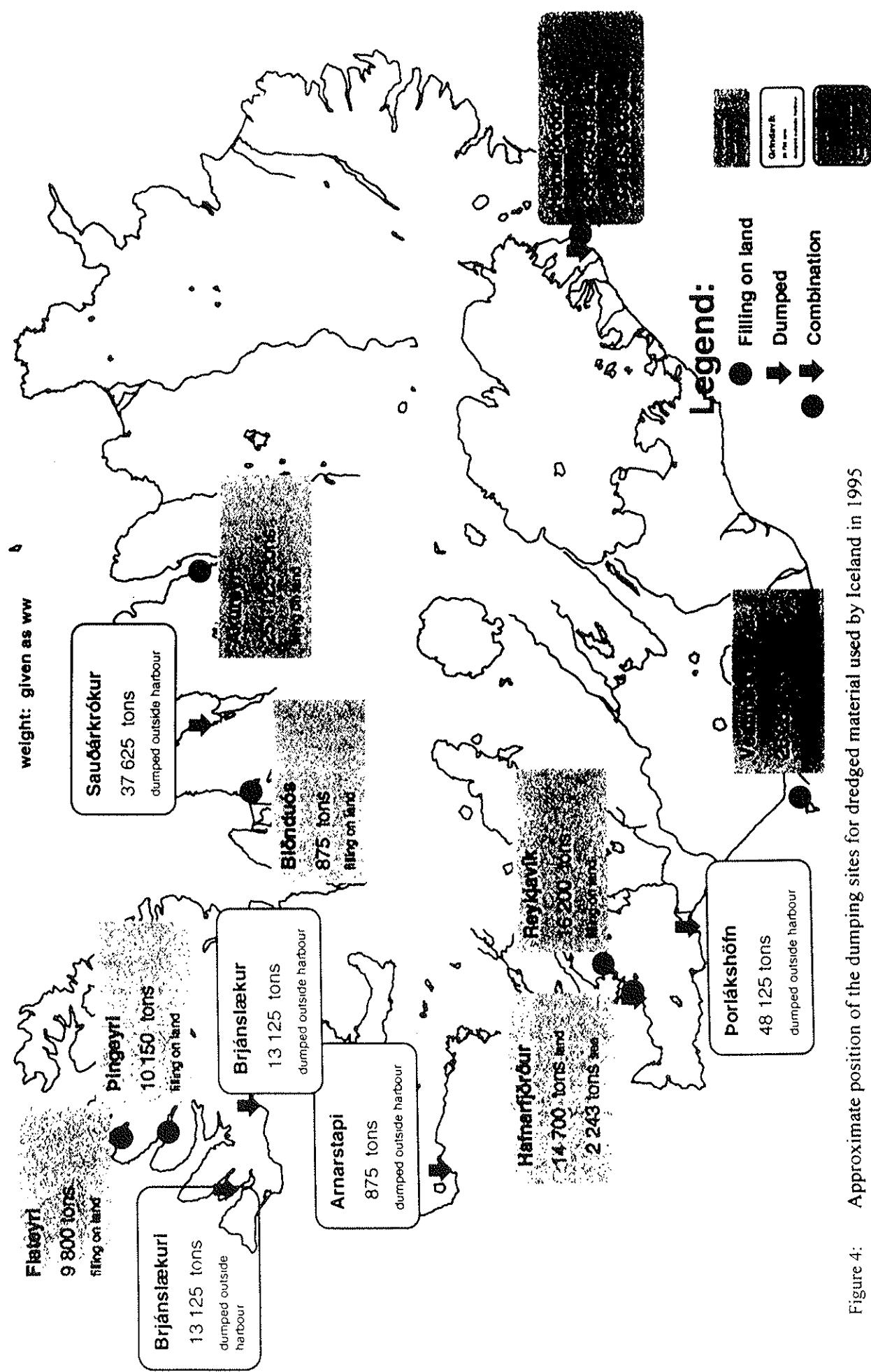


Figure 4: Approximate position of the dumping sites for dredged material used by Iceland in 1995

Dumpsite Locations - Ireland.

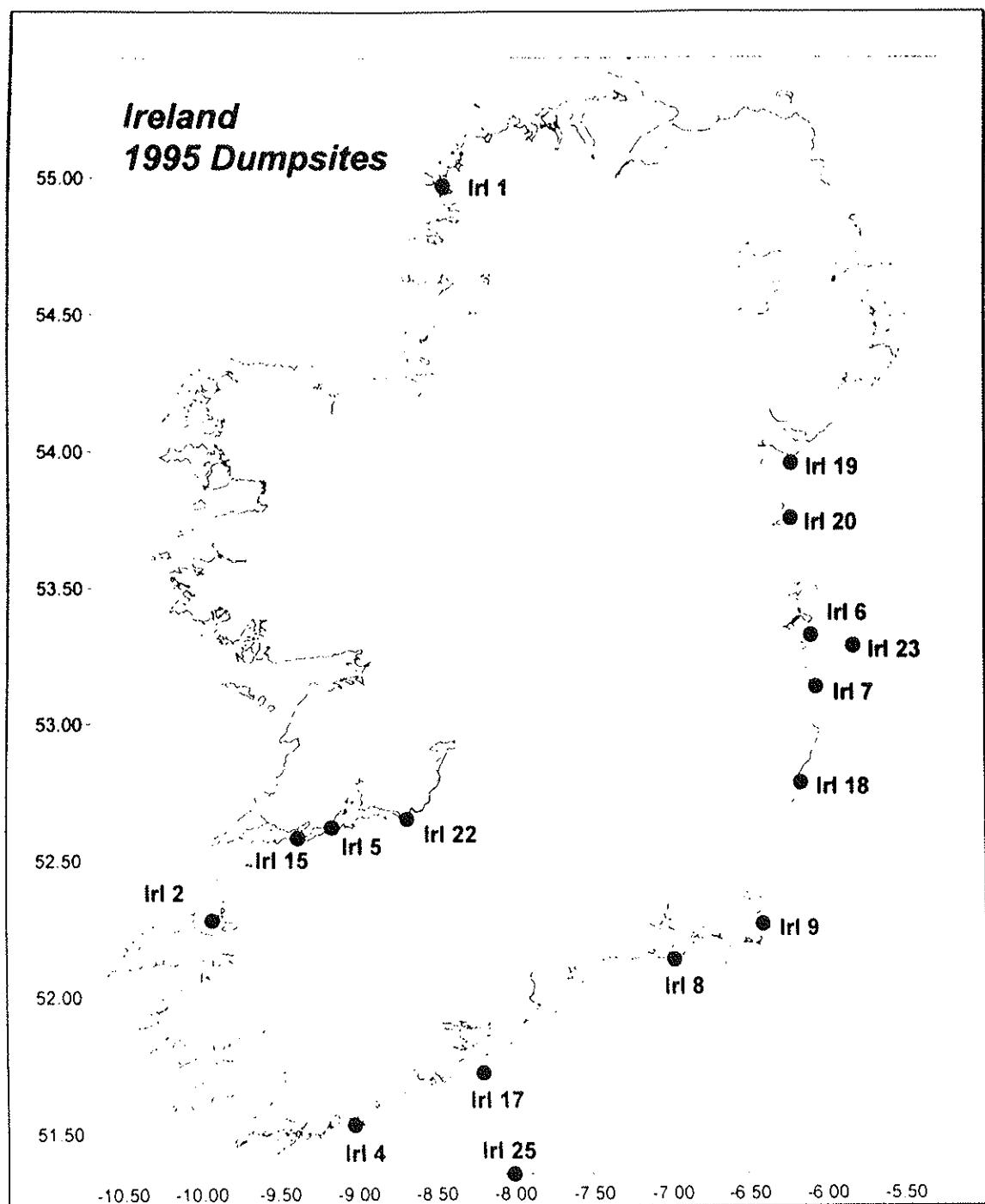


Figure 5: Approximate positions of the dumping sites used by Ireland in 1995

dredged material    IRL/1-2, IRL/4-9, IRL/15, IRL/17-20, IRL/22  
sewage sludge        IRL/23  
fish waste            IRL/27 (not indicated)

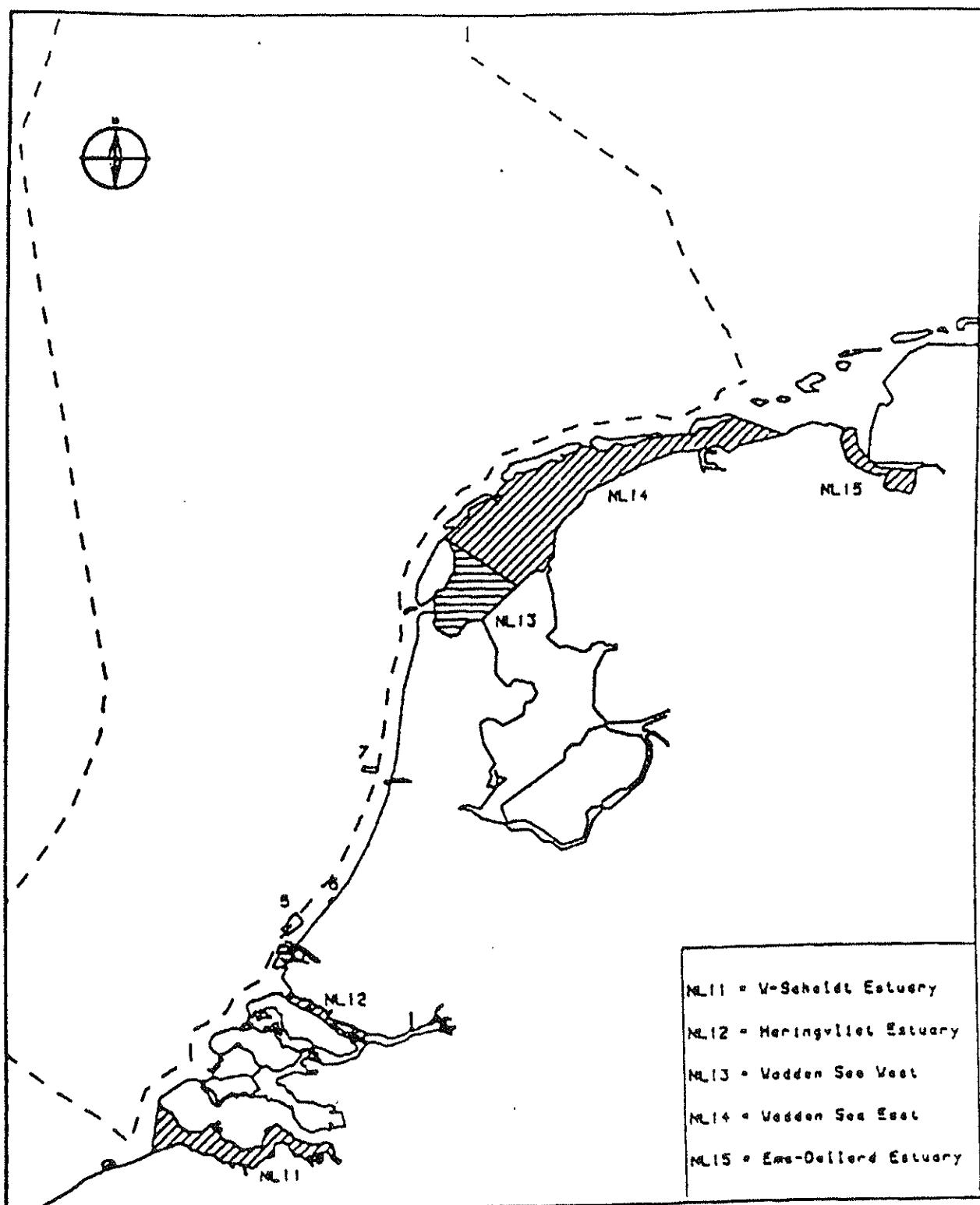


Figure 6: Approximate positions of the dumping sites for dredged materials used by the Netherlands in 1995

NL/5-7, NL/10, NL/11, NL/13-NL/15

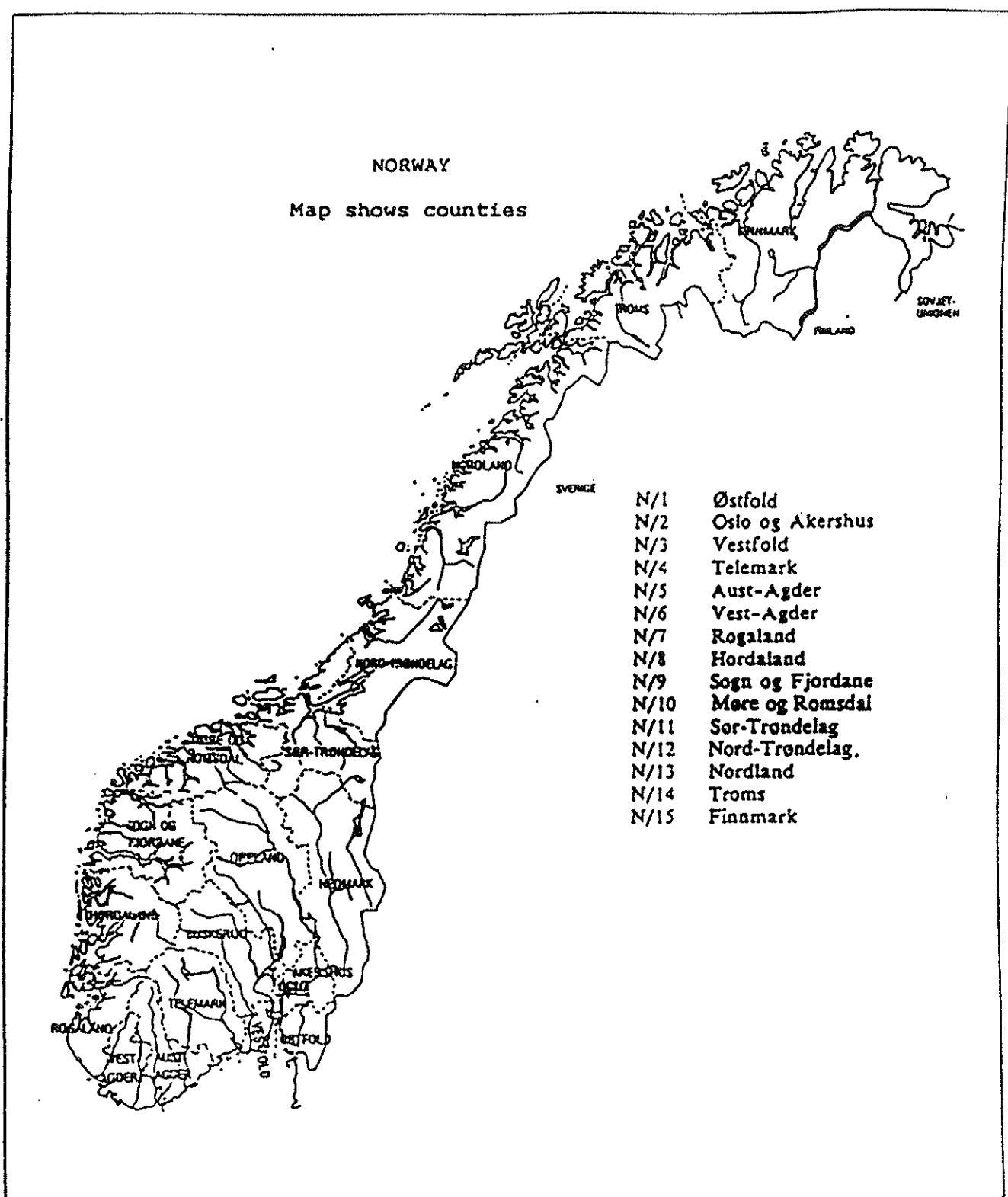


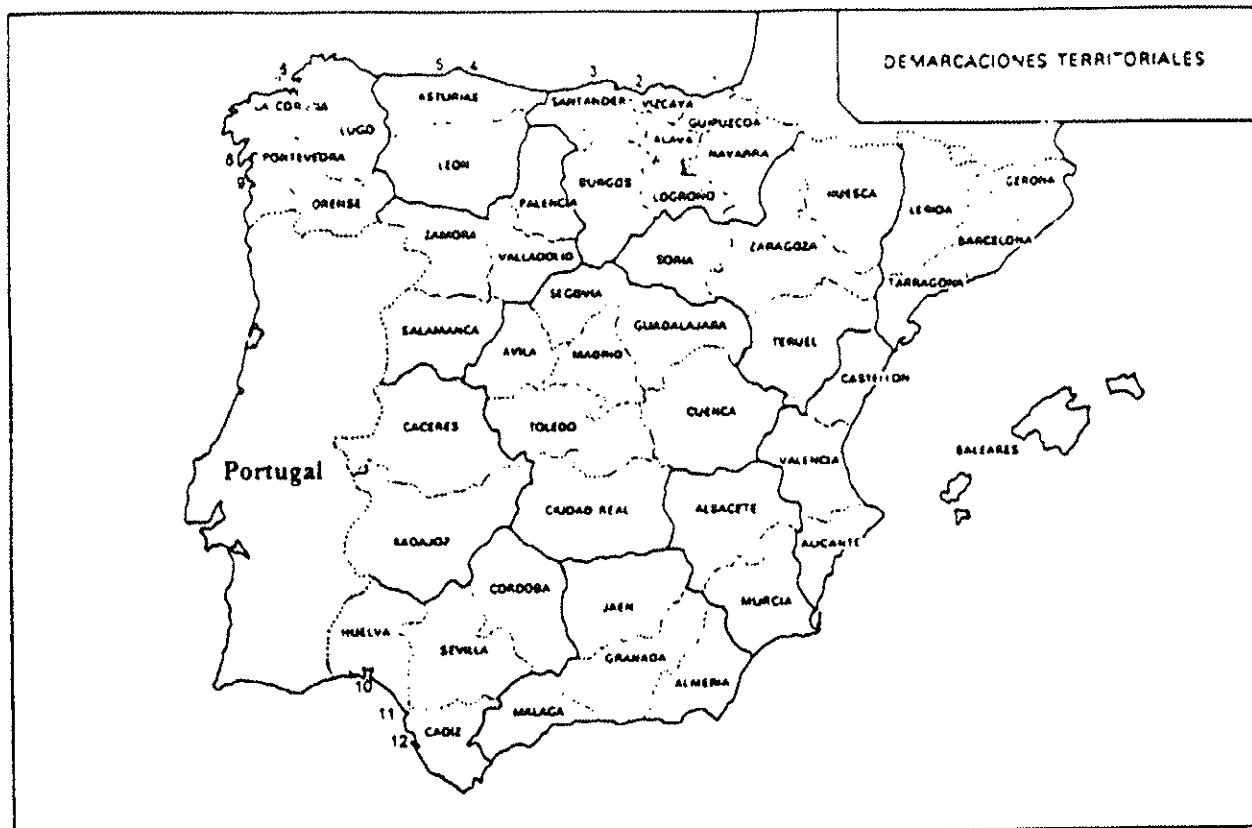
Figure 7: Norwegian Counties bordering internal waters of Norway in which wastes were dumped in 1995

dredged material

N/1-N/3, N/5, N/6, N/9-15

other wastes (ships and bulky wastes)

N/6, N/8, N/9, N/11



- |             |               |
|-------------|---------------|
| 1 Pasajes   | 7 La Coruña   |
| 2 Bilbao    | 8 Villagarcia |
| 3 Santander | 9 Marin       |
| 4 Gijon     | 10 Huelva     |
| 5 Aviles    | 11 Sevilla    |
| 6 Ferrol    | 12 Cadiz      |

Figure 8: Approximate positions of the dumping sites for dredged materials used by Spain in 1995

E/1, E/2, E/S, E/6, E/8, E/10-E-12

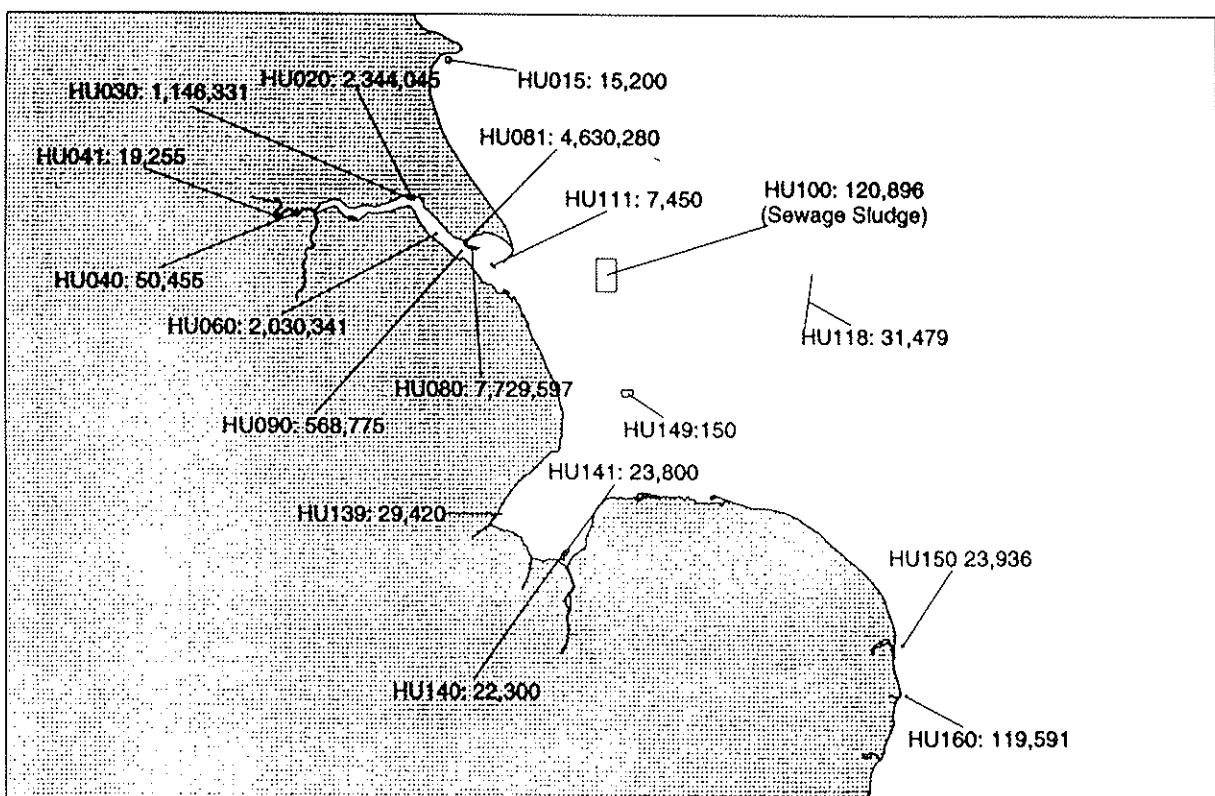
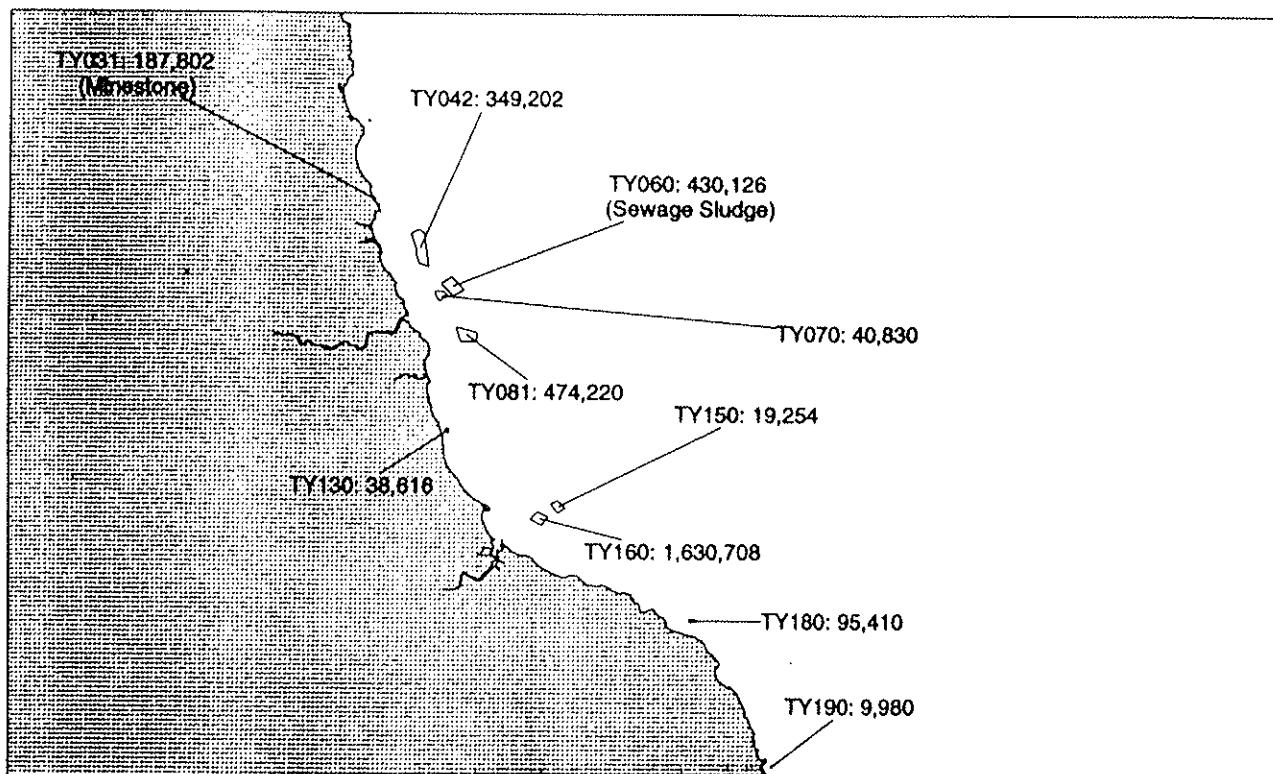


Figure 9a: Approximate positions, site codes and quantities disposed of (in tonnes) by the United Kingdom in 1995  
(North Eastern England and Eastern England)  
All waste is dredged material unless waste type is stated

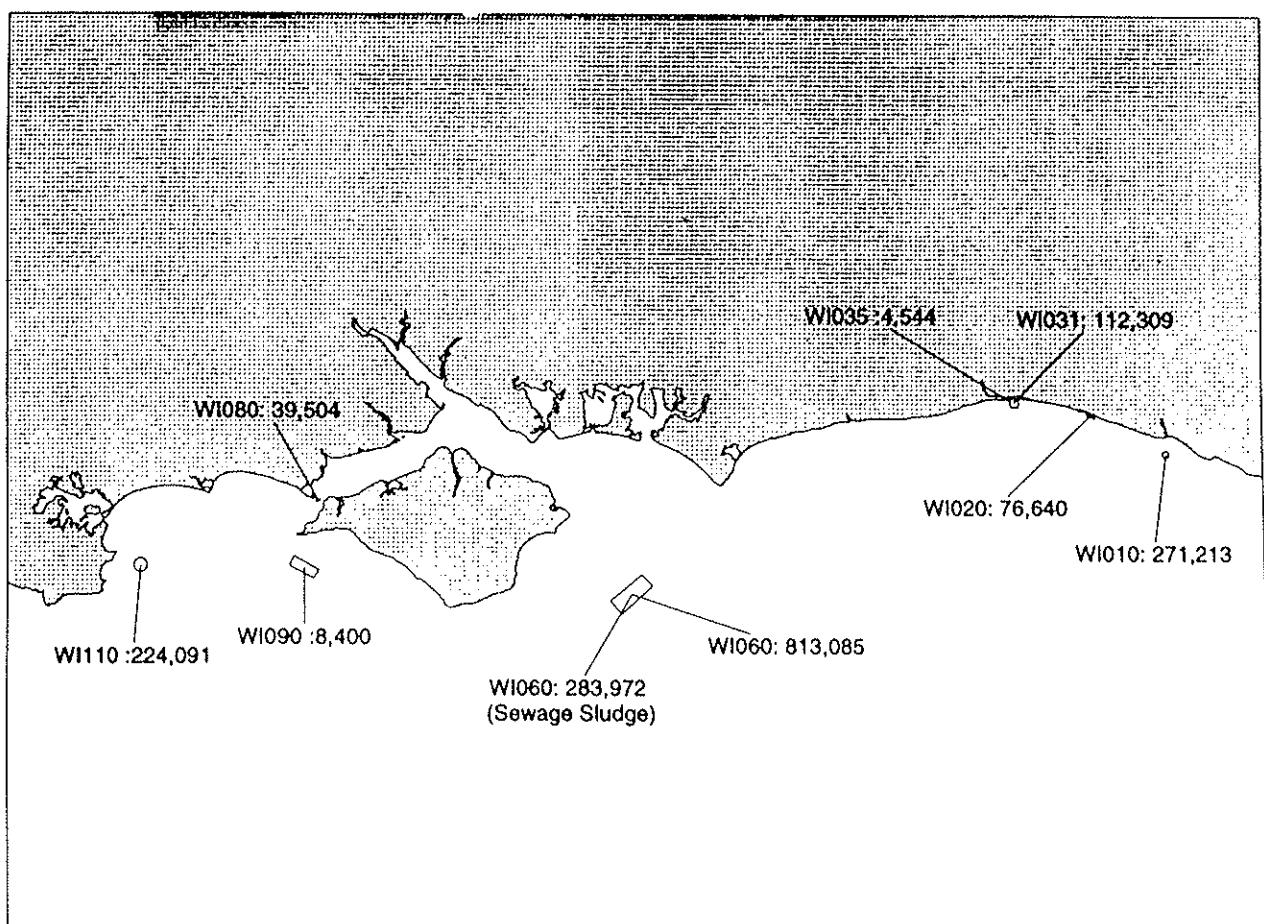
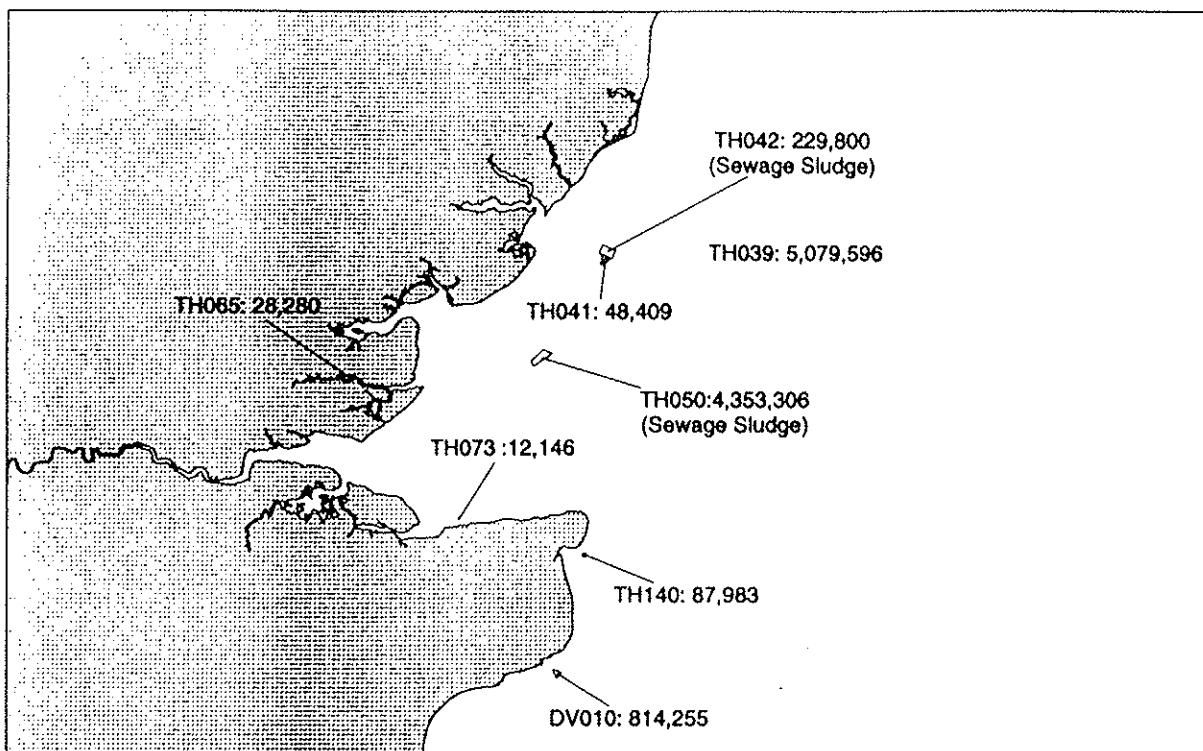


Figure 9b: Approximate positions, site codes and quantities disposed of (in tonnes) by the United Kingdom in 1995  
(South Eastern England and Southern England)  
All waste is dredged material unless waste type is stated

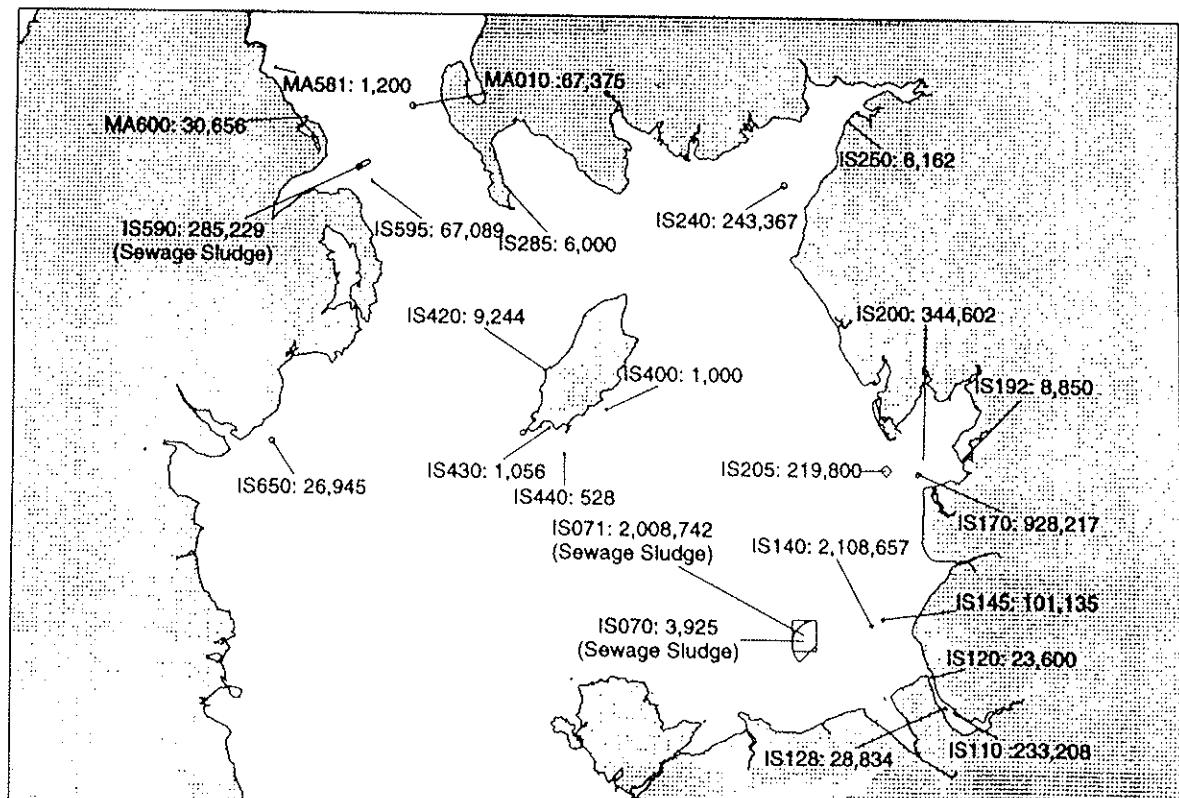
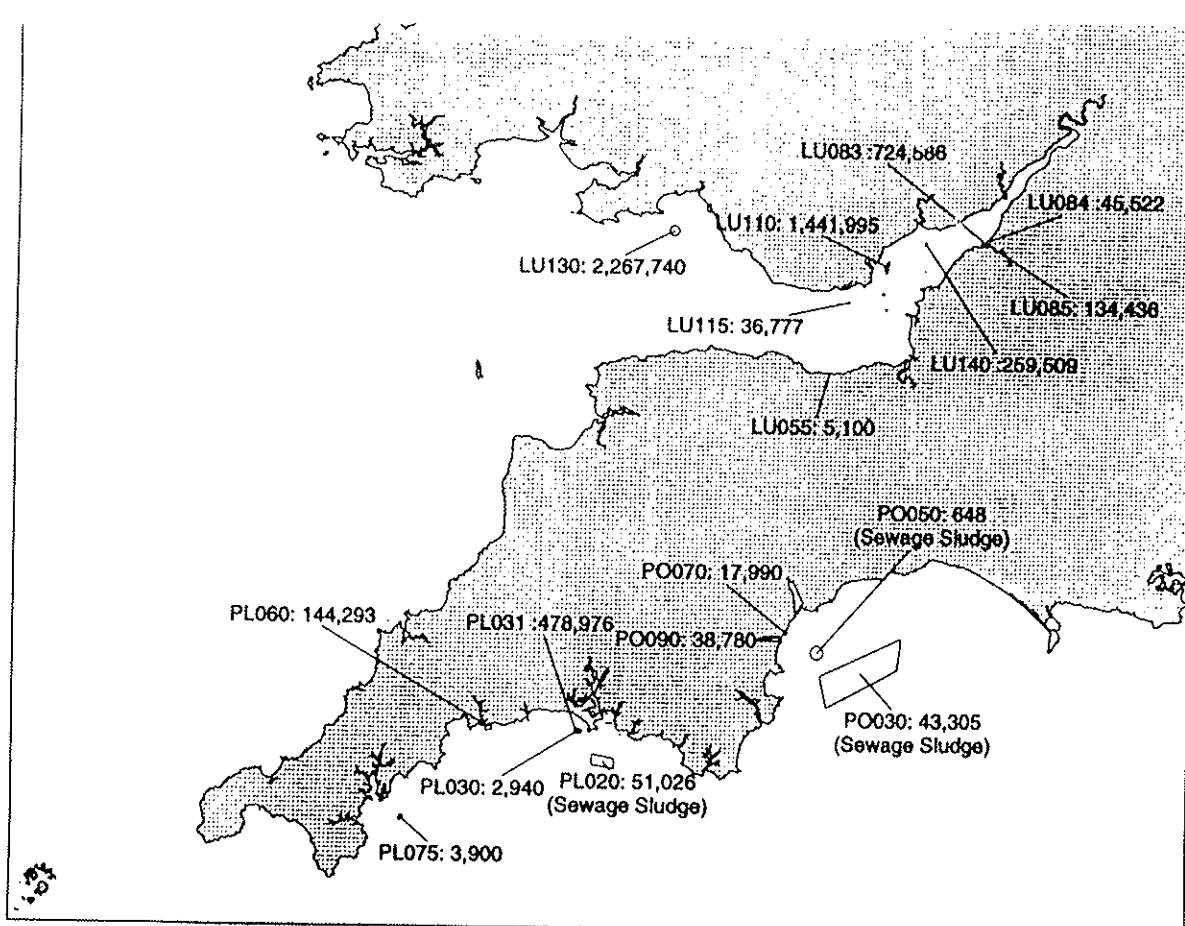


Figure 9c: Approximate positions, site codes and quantities disposed of (in tonnes) by the United Kingdom in 1995  
(South West England and North Western England)  
All waste is dredged material unless waste type is stated

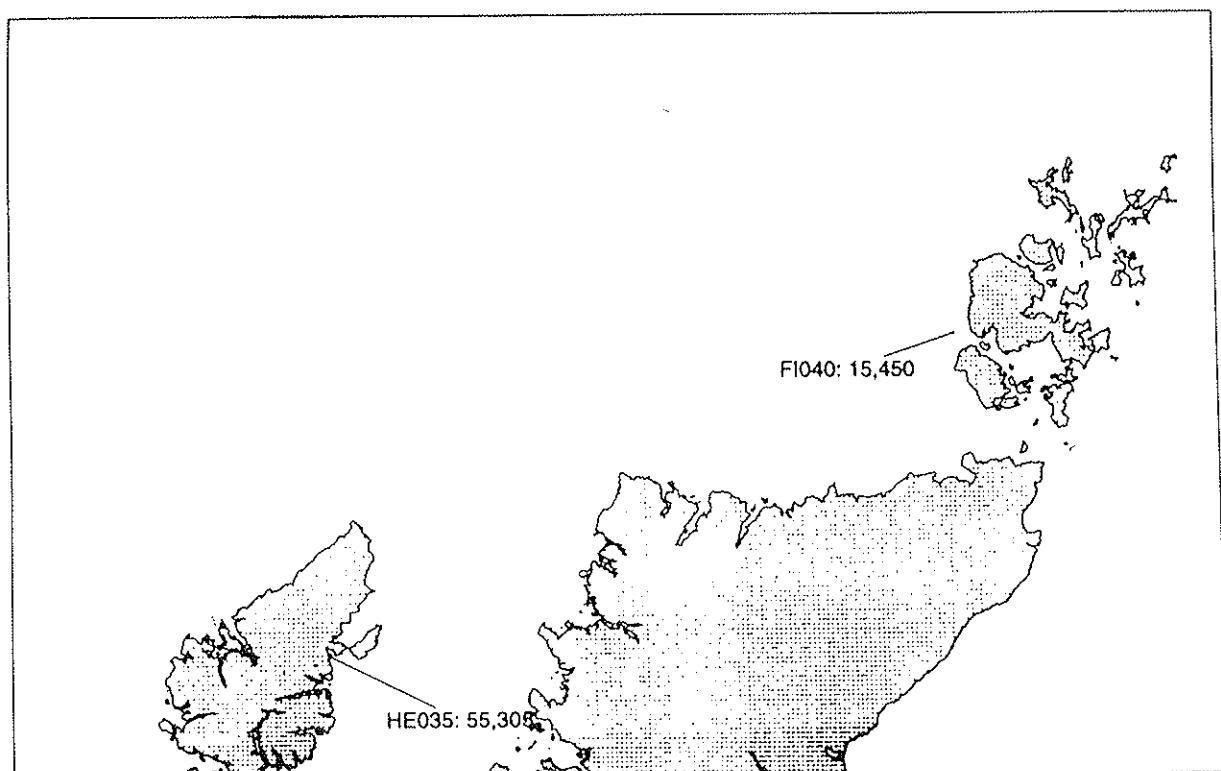
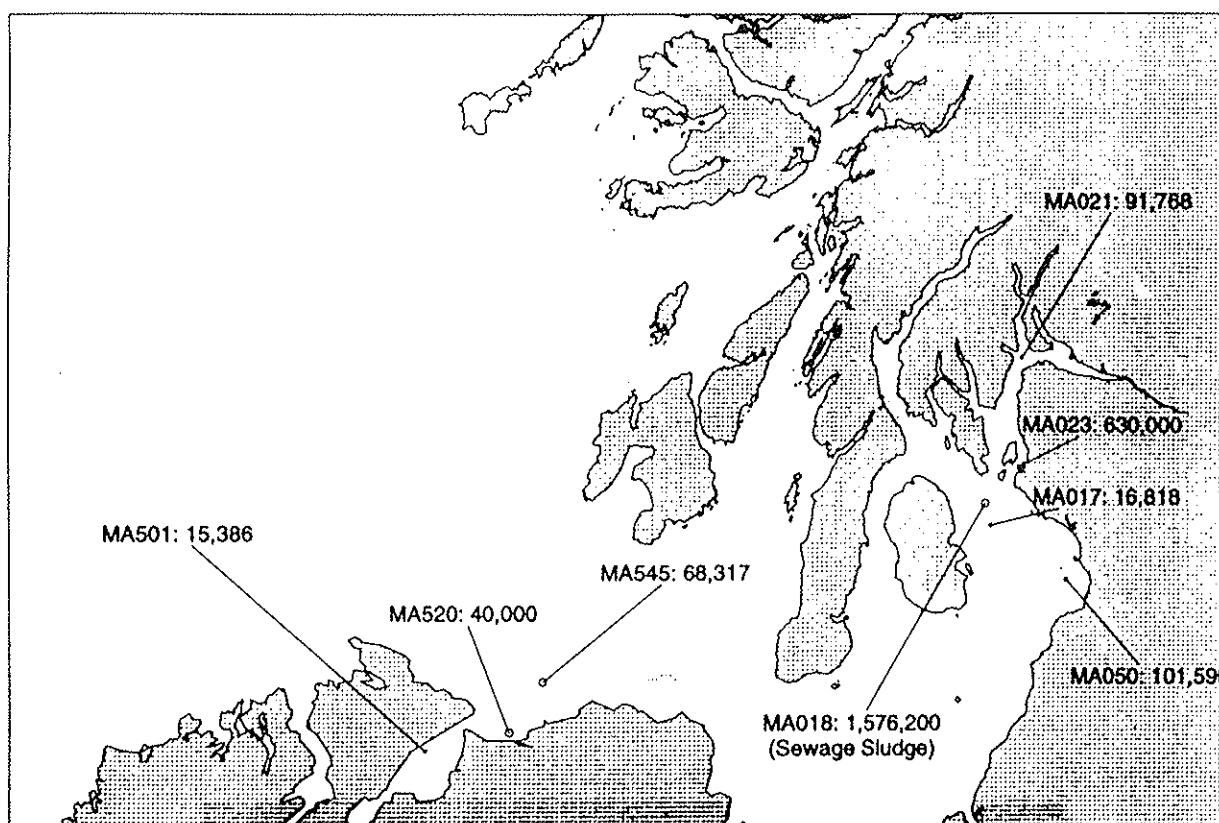


Figure 9d: Approximate positions, site codes and quantities disposed of (in tonnes) by the United Kingdom in 1995  
(Western Scotland and Northern Scotland)  
All waste is dredged material unless waste type is stated

**Marine Disposal Sites in Eastern Scotland.**  
**Site Codes and quantities disposed of in tonnes for 1995 are shown.**  
**All waste is dredged material unless waste type is stated.**

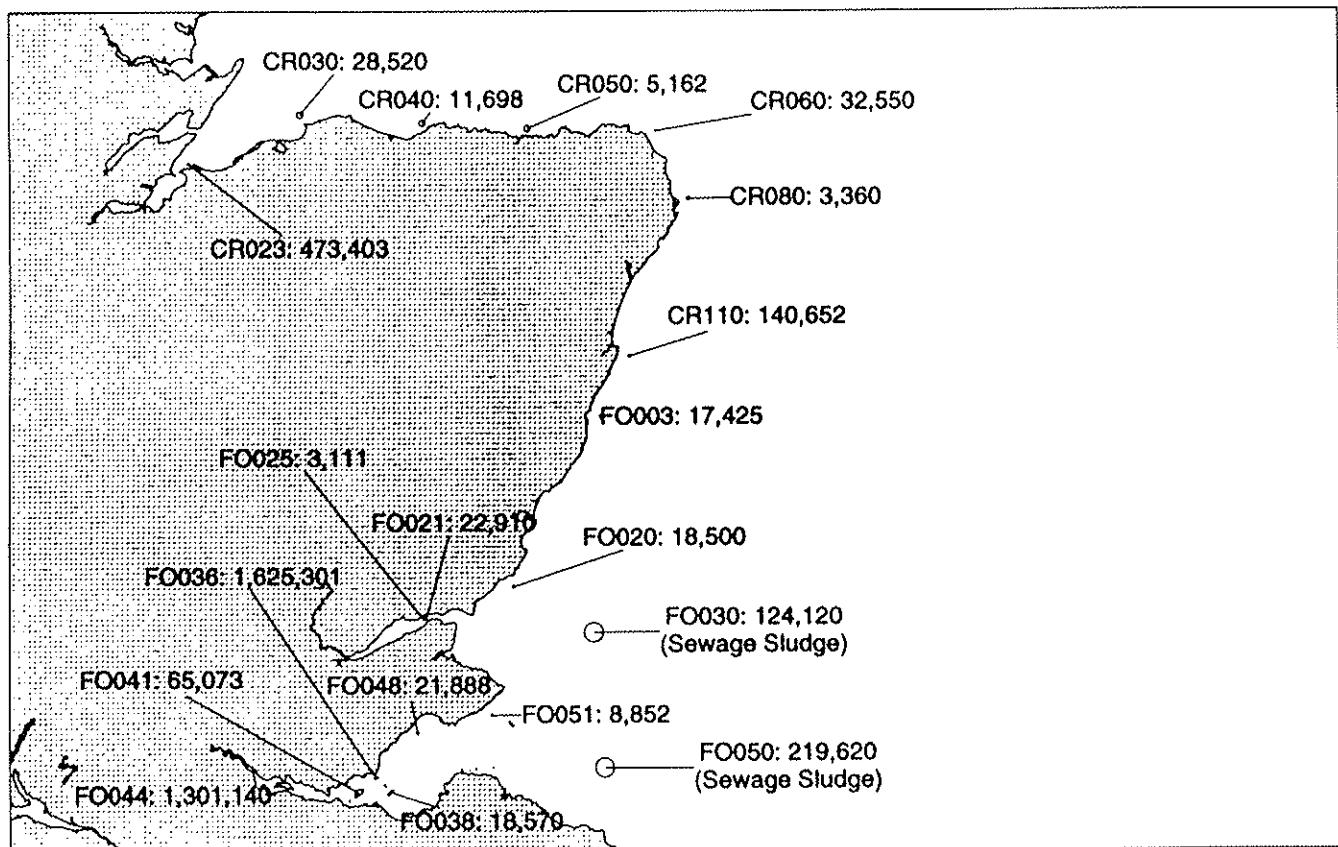


Figure 9e: Approximate positions, site codes and quantities disposed of (in tonnes) by the United Kingdom in 1995  
(Eastern Scotland)  
All waste is dredged material unless waste type is stated

# OSPAR Commission 1999



## Dumping of Wastes at Sea in 1996

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The continental decimal system is used throughout this report. Empty cells indicate that no information was available. Italic numbers are used when the measured/calculated value was smaller than the actual number given in the cell.

## Report on Dumping Permits Issued in 1996

**Table 1      Overview of number of permits issued and tonnes licensed in 1996**

Contracting Party	Number of permits issued for waste category						Tonnes licensed (dry weight)	Notes
	Dredged material	Sewage sludge	Inert Material	Fish waste	Vessels or aircraft	Other waste		
<b>Belgium</b>	1						5 520 000	(1)
<b>Denmark</b>	19						1 956 000	
<b>Germany</b>	-	-	-	-	-	-	-	(2)
<b>Iceland</b>	G.P.							General permit (3)
<b>Ireland</b>	19						2 526 480	
		2					42 600	
			1				40 000	
<b>The Netherlands</b>	4						12 055 337	
<b>Norway</b>	43						399 716	(4)(5)
					18		N1	(6)
						2	480	(7)
<b>Spain</b>	-	-	-	-	-	-	-	
<b>Sweden</b>	-	-	-	-	-	-	-	
<b>United Kingdom</b>	156						43 907 239	(8)
		15					323 538	(8)(9)
				(10)				(10)

## Report on Dumping Permits Issued in 1996

**Table 2      Specific reporting on permits issued in 1996\***

Contracting Party	Number of permits issued per waste category					Contaminants/ Material of concern**		Reasons for classification
	Dredged material	Sewage sludge	Inert Material	Vessels or aircraft	Other waste	Type	Level 2 (mg/kg)	
Norway	8					PCB, PAH++	(1)	Navigation and safety
				18		15 wooden, 3 iron vessels		
					2	acetylen gas cylinders and concrete waste		

\* Reporting requirements are specified in Appendix 1, point (b) of the Reporting Formats adopted at PRAM 1995 for the Annual Reporting of Dumping Permits Issued

\*\* Specification required only for dredged material and sewage sludge

**Amounts of Wastes Dumped at Sea in 1996**

**Table 3a Details of deposit sites and dumping methods**

OSCOM-codes Deposit site	dredged material	categories of waste				origin name of watersystem	dredged material			other waste categories place of origin		total quantity (in metric tonnes)	total org. C or similar notes	
		inert material	sewage material	fish waste	vessels/ aircraft		Harbour	Estuary	dredged	Sea	capital	maintenance		
<b>Belgium</b>														
B11	X					Pas van het Zand			X				964 695	
B11	X					CDNB Zeerbrugge			X				2 129 315	
B11	X					Scheur Oost			X				1 179 297	
B11	X					Scheur West			X				4 786 573	
B3	X					Pas van het Zand			X				200 271	
B3	X					CDNB Zeerbrugge			X				383 176	
B3	X					Scheur Oost			X				317 857	
B3	X					Scheur West			X				132 060	
B6	X					Zeebrugge harbour			X				2 368 085	
B6	X					CDNB Zeerbrugge			X				2 387 932	
B9	X					Stroombankki			X				714 458	
B9	X					Oostende harbour			X				1 012 451	
BINT1	X					Sch. vd Spijkeroort			X				825 407	
BINT2	X					Vloedschaar Everingen			X				818 256	
BINT3	X					Ebschaaer Everingen			X				424 340	
BINT4	X					Gat van Ossenisse			X				5 984 470	
BINT5	X					Plaat van Ossenisse			X				289 062	
BINT6B	X					Linkeroever Zaardsgrat			X				3 379 259	
BINT7	X					Schaar van Waarde			X				967 134	
													29 264 498	
<b>Total</b>														
<b>Denmark</b>														
DK/FRB18	X					Lynæs Havn + sejrende			X				2 534	
DK/NHL11	X					Havreslev Havn, sejrende			X				360	
DK/NHL25	X					Øster Hump havn og indsejling			X				3 612	
DK/NHL43	X					Vesterø Havn, fergebasin			X				16 060	
DK/RIB43	X					Sejlrende til Vesterø Havn, Læsø			X				44 700	
DK/RIB02	X					Østbjerg Havn, sejrende indenfor bogie 16			X				75 825	
DK/RIB03	X					Fano Lystbådeshavn			X				2 262	
DK/RIB03	X					Østbjerg Havn			X				115 000	
DK/RIB04	X					Østbjerg Havn			X				115 000	
DK/RIN26	X					Sælhandeholm Løb			X				92 051	
DK/VIB02	X					Agger Færgeshavn			X				2 674	
DK/VIB13	X					Oroddet ved Nykøbing Mors			X				254	
DK/AAR26	X					Sejlrende over bæren ved Randers Fjord			X				92 453	
													562 784	
<b>Total</b>														

## Amounts of Wastes Dumped at Sea in 1996

Table 3a Details of deposit sites and dumping methods

*OSPAR Commission, 1999:  
Dumping of Wastes at Sea in 1996*

**Amounts of Wastes Dumped at Sea in 1996**

**Table 3a Details of deposit sites and dumping methods**

OSPAR-codes Deposit site	categories of waste				origin name of watersystem	dredged material			other waste categories place of origin	total quantity (in metric tonnes)	
	dredged material	inert material	sewage sludge	vessels/ aircraft waste		Harbour	Estuary	dredged Sea		dry weight	total org. C or similar
IRL/2	X				Fenit Harbour	X			X		243 000
IRL/5	X				Foynes Harbour	X			X		30 987
IRL/6	X				Dublin Port	X			X		99 034
IRL/8	X				Waterford Harbour	X			X		331 797
IRL/9											605
IRL/15	X				Shannon Estuary	X			X		1 800
IRL/17	X				Cork Harbour	X			X		583 475
IRL/20	X				Drogheda Harbour	X			X		4 628
IRL/22	X				Limerick Harbour	X			X		39 053
IRL/23											11 758
IRL/26	X				Kilmore Quay	X			X		(5)
IRL/27	X				Tory Island Hor.	X			X		2 850
IRL/28	X				Malahide Estuary	X			X		16 000
Total											26 160
The Netherlands											1 401 097
NL/5	X				Rotterdam harbour	X			X		2 278 569
NL/6	X				Scheveningen Harbour	X			X		ND
NL/7	X				IJmuiden Harbour	X			X		91 987
NL/8	X				Rotterdam harbour	X			X		ND
NL/10	X				Eastern Seeldt harbours	X			X		818 862
NL/11	X				Western Seeldt harbours	X			X		ND
NL/13	X				Waddensea W harbours	X			X		2 012 608
NL/14	X				Waddensea E harbours	X			X		ND
NL/15	X				Ems-Dollard harbours	X			X		ND
Total											8 016 381
Norway											49 972
N/1	X				Ostfold (Oslofjord)	X			X		480
N/1	X				Ostfold (Oslofjord)	X			X		60
N/1	X				Ostfold (Oslofjord)	X			X		3 000
N/1	X				Ostfold (Oslofjord)	X			X		120
N/1	X				Ostfold (Oslofjord)	X			X		120
N/1	X				Ostfold (Oslofjord)	X			X		120
N/1	X				Ostfold (Oslofjord)	X			X		360
N/1	X				Ostfold (Oslofjord)	X			X		1 920
N/2	X				Ostfold (Oslofjord)	X			X		12 000
N/2	X				Ost & Ak. (Oslofjord)	X			X		1 800
N/3	X				Ost & Ak. (Oslofjord)	X			X		4 800
Vestfold (Oslofjord)											

## Amounts of Wastes Dumped at Sea in 1996

**Table 3a Details of deposit sites and dumping methods**

OSCOM-codes	Deposit site	categories of waste				origin	name of watersystem	dredged material			other waste categories	place of origin	dredging operation capital	dry weight	total quantity (in metric tonnes)	total org. C or similar	notes
		dredged material	inert material	sewage sludge	fish waste			Harbour	Estuary	Sea							
N/3	x					Vesfold (Oslofjord)		x			x				600		
N/3	x					Vesfold (Oslofjord)		x			x				1 200		
N/3	x					Vesfold (Oslofjord)		x			x				450		
N/3	x					Vesfold (Oslofjord)		x			x				70		
N/3	x					Vesfold (Oslofjord)		x			x				2 400		
N/3	x					Vesfold (Oslofjord)		x			x				1 200		
N/3	x					Vesfold (Oslofjord)		x			x				600		
N/3	x					Vesfold (Oslofjord)		x			x				600		
N/3	x					Telemark (Skagerrak)		x			x				600		
N/5	x					Telemark (Skagerrak)		x			x				240		
N/5	x					Telemark (Skagerrak)		x			x				216		
N/5	x					Telemark (Skagerrak)		x			x				240		
N/5	x					Telemark (Skagerrak)		x			x				240		
N/5	x					Telemark (Skagerrak)		x			x				1 560		
N/5	x					Aust - Agder (Skagerrak)		x			x				540		
N/6	x					Aust - Agder (Skagerrak)		x			x				4 200		
N/7	x					Vest - Agder (Skagerrak)		x			x				950		
N/7	x					Vest - Agder (Skagerrak)		x			x				2 350		
N/9	x					Hordaland (North Sea)		x			x				840		
N/9	x					concrete waste									(2)		
N/10	x					Sogn & Fj. (North Sea)		x			x				8 000		
N/10	x														16 860		
N/11	x					More & R. (Norwegian Sea)		x			x				(2)		
N/11	x														(2)		
N/12	x					3	Sor - Tr. (Norwegian Sea)	x			x				4 800		
N/12	x					1	Sor - Tr. (Norwegian Sea)	x			x				(2)		
N/12	x					Sor - Tr. (Norwegian Sea)		x			x				300		
N/12	x					Sor - Tr. (Norwegian Sea)		x			x				3 000		
N/12	x					Sor - Tr. (Norwegian Sea)		x			x				120		
N/12	x					Sor - Tr. (Norwegian Sea)		x			x				36 000		
N/12	x					Sor - Tr. (Norwegian Sea)		x			x				18 000		
N/12	x					Sor - Tr. (Norwegian Sea)		x			x				600		
N/12	x					Sor - Tr. (Norwegian Sea)		x			x				128 400		
N/14	x					Nordland (Norwegian Sea)		x			x				78 000		
N/14	x														(2)		
N/15	x					4	Trons (Norwegian Sea)	x			x				9 500		
N/15	x					1	Trons (Norwegian Sea)	x			x				5 000		
N/15	x					3	Trons (Norwegian Sea)	x			x				1 100		
N/15	x					2	Trons (Norwegian Sea)	x			x				47 000		

## Amounts of Wastes Dumped at Sea in 1996

**Table 3a Details of deposit sites and dumping methods**

OSCON-codes	categories of waste				origin name of watersystem	dredged material	other waste categories	place of origin	total quantity (in metric tonnes)	
	dredged material	inert material	sewage sludge	fish waste					dry weight	total org. C
Total	N/16				4	Finnmark (Barents Sea)			399 716	(2)
<b>Spain</b>										
E/1	X				Puerto de Pasajes	X				
E/2	X				Puerto de Bilbao	X				
E/3	X				Puerto de Santander	X				
E/4	X				Puerto de Gijón	X				
E/5	X				Puerto de Avilés	X				
E/6	X				Puerto del Faro	X				
E/12	X				Puerto de Cádiz	X				
<b>Total</b>									2 055 148	36415
<b>Sweden</b>										
SWE/1	X				St Björkholmen (Skagerrack)	X				
SWE/2	X				St Borgen (Skagerrack)	X				
SWE/3	X				Ösfjorden (Skagerrack)	X				
SWE/4	X				Bysfjorden (Skagerrack)	X				
SWE/5	X				Lavön (Skagerrack)	X				
SWE/6	X				Almöön-Källön (Skagerrack)	X				
SWE/7	X				Hakefjorden (Kattegat)	X				
SWE/8	X				Falkenberg (Kattegat)	X				
SWE/9	X				Varberg (Kattegat)	X				
SWE/10	X				Skåne (Öresund)	X				
SWE/11	X				Skåne (Öresund)	X				
SWE/12	X				Kalmarsund (Eg. Östersjön)	X				
SWE/13	X				Lilla Värtan (Eg. Östersjön)	X				
SWE/14	X				Salsjön (Eg. Östersjön)	X				
SWE/15	X				Häninge (Eg. Östersjön)	X				
SWE/16	X				Söderortje (Eg. Östersjön)	X				
SWE/17	X				Gävle (Bottnishavet)	X				
SWE/18	X				Gävle (Bottnishavet)	X				
SWE/19	X				Norrboten (Bottenviken)	X				
<b>Total</b>									3 398 608	
<b>UK</b>										
UK/CR019	X				Cromarty Firth	X				
UK/CR23	X				Moray Firth	X				

## Amounts of Wastes Dumped at Sea in 1996

**Table 3a Details of deposit sites and dumping methods**

OSCOM-codes Deposit site	dredged material	inert material	categories of waste sewage sludge	fish waste	vessels/ aircraft	origin name of watersystem	dredged material	type of areas dredged Harbour Estuary Sea	dredging operation capital maintenance	other waste categories place of origin	total quantity (in metric tonnes)	total org. C	or similar	notes	
UK/CR030	X					Moray Firth	X			X		8 291			(3)
UK/CR040	X					Spey Bay/Moray Firth	X			X		4 224			
UK/CR050	X					Grampian Coast	X			X		1 402			
UK/CR060	X					Fraserburgh Bay	X			X		159 417			
UK/CR080	X					Grampian Coast	X			X		1 133			
UK/CR110	X					Dee River	X			X		122 278			
UK/DV010	X					Kent Coast	X			X		130 274			
UK/PB05	X					Linga Sound	X			X		1 643			
UK/FO007	X					Grampian Coast	X			X		1 688			
UK/FO010	X					South Esk River	X			X		102 459			
UK/FO020	X					Tayside Coast	X			X		11 563			
UK/FO021	X					Firth Of Tay	X			X		37 217			
UK/FO025	X					Firth Of Tay	X			X		3 503			
UK/FO036	X					Firth Of Forth	X			X		16 129			
UK/FO038	X					Firth Of Forth	X			X		20 275			
UK/FO041	X					Firth Of Forth	X			X		4 480			
UK/FO044	X					Firth Of Forth	X			X		330 249			
UK/HU033	X					Harris Sound	X			X		1 820			
UK/HU015	X					Humber Side Coast	X			X		10 259			
UK/HU020	X					Humber River	X			X		1 643 480			
UK/HU030	X					Humber River	X			X		433 747			
UK/HU040	X					Humber River	X			X		25 098			
UK/HU041	X					Humber River	X			X		14 140			
UK/HU060	X					Humber River	X			X		1 340 795			
UK/HU080	X					Humber River	X			X		3 666 407			
UK/HU090	X					Humber River	X			X		371 854			
UK/HU139	X					Witham River	X			X		37 693			
UK/HU141	X					Great Ouse River	X (30%)	X (70%)		X		41 777			
UK/HU150	X					Yare River	X (65%)	X (35%)		X		30 255			
UK/HU160	X					Suffolk Coast	X			X		2 251			
UK/IS110	X					Mersey River	X (33%)	X (67%)		X		140 372			
UK/IS120	X					Mersey River	X			X		1 438			
UK/IS128	X					Mersey River				X		205 205			
UK/IS140	X					Mersey River	X (89%)	X (1%)		X		1 496 185			
UK/IS145	X					Mersey River	X (33%)	X (67%)		X		8 747			
UK/IS147	X					Liverpool Bay				X		377 339			
UK/IS148	X					Liverpool Bay				X		478 229			

## Amounts of Wastes Dumped at Sea in 1996

**Table 3a Details of deposit sites and dumping methods**

*OSPAR Commission, 1999:  
Dumping of Wastes at Sea in 1996*

OSCOM-codes Deposit site	categories of waste					origin name of watersystem	dredged material Harbour Estuary	type of areas dredged Sea	dredging operation capital maintenance	other waste categories place of origin	total quantity (in metric tonnes)	total org. C	or similar	notes
	dredged material	inert material	sewage sludge	fish waste	vessels/ aircraft									
UK/IS/49	X					Liverpool Bay		X	X			1 258		
UK/IS/70	X					Wyre River	X					624 113		(3)
UK/IS/92	X					Lune River	X					5 128		(3)
UK/IS/200	X					Lancashire Coast/Morecambe Bay	X					236 791		(3)
UK/IS/205	X					Cumbria Coast	X					389 548		
UK/IS/240	X					Cumbria Coast	X					44 353		(3)
UK/IS/241	X					Cumbria Coast	X					36 589		
UK/IS/250	X					Cumbria Coast	X					7 994		(3)
UK/IS/285	X					Luce Bay	X					3 698		(3)
UK/IS/400	X					Douglas Harbour, Isle of Man	X					170		
UK/IS/420	X					Peel Harbour, Isle of Man	X					219		
UK/LU/636	X					Down Coast	X					60 000		
UK/LU/083	X					Avon River	X					587 723		(3)
UK/LU/084	X					Avon River	X					59 338		(3)
UK/LU/085	X					Avon River	X					125 678		(3)
UK/LU/086	X					Avon River	X					1 629		(3)
UK/LU/110	X					Taff R./Usk R./Severn Est.	X					217 741		(3)
UK/LU/115	X					Seven Estuary	X					9 946		(3)
UK/LU/130	X					Neath River/Swansea Bay	X (99%)	X (1%)				4 459 580		(3)
UK/LU/140	X					Usk River	X					130 464		(3)
UK/MA/010	X					Pontywaun Bay/Ryan Loch	X					27 316		
UK/MA/021	X					Firth Of Clyde	X (96%)	X (4%)				156 591		(3)
UK/MA/025	X					Firth Of Clyde	X					34 200		
UK/MA/030	X					Firth Of Clyde	X					5 555		
UK/MA/501	X					Foyle River	X					26 576		
UK/MA/520	X					Bann River	X					5 555		
UK/MA/545	X					Foyle River	X					1 485		
UK/MA/565	X					Antium Coast	X					5 362		
UK/PL/031	X					Phin/Tamar Rivers	X					87 765		
UK/PL/069	X					Fowey River/Cornwall Coast South	X					637		
UK/PL/075	X					Falmouth Harbour	X					10 065		
UK/PO/070	X					Teign River	X					53 672		
UK/PO/090	X					Teign River	X					42 180		
UK/TH/005	X					Suffolk Coast	X					1 979 428		
UK/TH/039	X					Orwell/Stour Rivers	X					18 653		
UK/TH/041	X					Orwell River	X					22 442		(3)
UK/TH/065	X					Crouch River	X							

## Amounts of Wastes Dumped at Sea in 1996

**Table 3a Details of deposit sites and dumping methods**

OSCOM-codes Deposit site	categories of waste				origin name of water system	dredged material			other waste categories place of origin	total quantity (in metric tonnes)			notes
	dredged material	inert material	sewage sludge	fish waste		Harbour	Estuary	Sea		dredging operation capital maintenance	dry weight	total org. C	
UK/TH070	X				Thames River	X (33%)	X (67%)		X			56 501	
UK/TH140	X				Kent Coast/Stour River	X (67%)			X			47 901	
UK/TH145	X				Kent Coast				X			882	
UK/TH042	X				Northumberland Coast	X			X			148 564	
UK/TY070	X				Tyne River	X (62%)	X (38%)		X			81 005	
UK/TY081	X				Tyne River	55,5487	44,6513		X			60 363	
UK/TY090	X				Wear River	X			X			109 820	
UK/TY130	X				Durham Coast	X			X			23 921	
UK/TY130	X				Tees River/Hartlepool Bay	X			X			26 413	
UK/TY160	X				Tees River/Hartlepool Bay	X (64%)	X (18%)	X (18%)	X			1 362 586	
UK/TY180	X				Esk River	X (50%)			X			69 580	
UK/TY190	X				North Yorkshire Coast	X			X			6 250	
UK/W1010	X				Ouse River (E. Sussex)	X			X			64 244	
UK/W1020	X				East Sussex Coast	X			X			13 574	
UK/W1031	X				Audur River/Aggregate Dredging A	X (92%)			X			38 000	
UK/W1035	X				Aggregate Dredging Area		X		X			3 578	
UK/W1060	X				Seaton Water, IoW, Poole etc.	X (28%)	X (71%)	X (1%)	X			969 326	
UK/W1080	X				Seaton Water, IoW, Poole etc.	X			X			32 201	
UK/W1090	X				Southampton Water	X			X			1 738	
UK/W1110	X				Poole Harbour/Dorset Cst./Weymouth	X			X			93 009	
UK/FO030	X								Edinburgh STW			6 291	
UK/FO030	X								Edinburgh STW			8 112	
UK/FO100	X								Knaresborough (Leeds)			5 535	
UK/IS071	X								Liverpool etc. STW			54 456	
UK/IS590	X								Belfast STWs			13 917	
UK/MA018	X								Glasgow STWs			66 191	
UK/PL020	X								Plymouth STWs			1 155	
UK/PO030	X								Exeter STW			1 139	
UK/TH042	X								Tribury + Ipswich			12 640	
UK/TH050	X								Crossness+Beckton			56 768	
UK/TY060	X								Newcastle+Port			21 372	
UK/W1060	X								Southampton ST			20 331	
												8 682	
												7 410	
												24 381 943	155324
												Total	

## Amounts of Wastes Dumped at Sea in 1996

**Table 3b Total loads (indicate the method of determination in Part II)**

OSCOM-codes in tonnes											in kilograms												
Deposit site	Cd	Hg	As	Cr	Cu	Pb	Ni	Zn	Oil	Total PAH	N	P	CB 28	CB 52	CB 101	CB 118	CB 138	CB 153	Total HCB	Y- HCH	Diel- HCH	DDT drin	TBT other notes
<b>Belgium</b>																							
B/1	1.833	0.345	10.600	29.900	10.800	30.200	18.600	86.800													7		
B/1	4.046	0.762	23.400	66.000	23.900	66.700	41.100	191.700													15		
B/1	2.100	0.183	12.000	31.600	10.100	39.700	18.900	87.600													6		
B/1	13.785	1.187	78.100	201.200	65.900	258.100	122.300	569.000													38		
B/3	0.381	0.072	2.200	6.200	2.200	6.300	3.900	18.000													1		
B/3	0.728	0.137	4.200	11.900	4.300	12.000	7.400	34.500													3		
B/3	0.572	0.049	3.200	8.500	2.700	10.700	5.100	25.600													2		
B/3	0.238	0.020	1.300	3.500	1.100	4.500	2.100	9.800													1		
B/6	6.725	1.101	33.400	105.600	78.600	185.200	56.100	399.700													38		
B/6	11.262	1.926	59.700	179.600	15.503	259.900	102.200	614.700													55		
B/9	1.357	0.256	7.900	22.100	8.000	22.400	13.800	64.300													5		
B/9	2.531	0.284	13.800	55.000	29.100	65.700	21.500	152.600													13		
B/INT1	0.040	0.010	5.570	17.360	1.710	5.320	2.160	21.400													0		
B/INT2	0.040	0.010	5.560	17.200	1.730	5.300	2.150	21.300													0		
B/INT3	0.010	0.000	2.870	9.850	0.250	1.970	0.810	8.490													0		
B/INT4	0.250	0.030	24.810	110.750	2.680	23.850	10.300	169.590													0		
B/INT5	0.140	0.000	1.400	3.660	0.510	1.930	0.710	5.750													0		
B/INT6B	1.320	0.040	14.560	51.390	4.580	20.590	7.390	65.710													2		
B/INT7	0.450	0.020	4.550	12.890	1.480	5.990	2.370	18.810													1		
<b>Total</b>	47.8	6.5	309.1	944.2	251.1	1026.4	439.1	2510.4													1869		
<b>Denmark</b>																							
DK/JFRB18	0.002	0.060		0.051	0.127	0.076	0.051																
DK/NJL11	0.000	0.000		0.032	0.022	0.032	0.018	0.079															
DK/NJL25	0.005	0.004		0.108	0.181	0.144		0.614															
DK/NJL43	0.048	0.008		0.161	0.321	0.289		0.964															
DK/RIB02																							
DK/RIB03	0.011	0.006		1.063	0.656	1.086		4.072															
DK/RIB05	0.230	0.097		24.192	11.750	16.819		71.424															
DK/RIB04	0.230	0.097		24.192	11.750	16.819		71.424															
DK/RIN26	0.052	0.018		2.269	3.222	3.406	3.498	3.590	14.728														
DK/VIB02	0.001	0.000		0.182	0.302	0.152	0.144	1.329	0.767														
DK/VIB13	0.000	0.000		0.003	0.011	0.022	0.013	0.004	0.024														
DK/AAR26	0.092	0.009		0.277	0.462	0.925	1.387	3.236															
<b>Total</b>	0.7	0.2	2.4	53.6	28.8	39.8	6.4	167.3															

## Amounts of Wastes Dumped at Sea in 1996

**Table 3b Total loads (indicate the method of determination in Part II)**

OSCOM-codes in tonnes											in kilograms										
Deposit site	Cd	Hg	As	Cr	Cu	Pb	Ni	Zn	Oil	Total PAH	P	CB 28	CB 52	CB 10t	CB 118	CB 138	Total HCB 153	CB 180	Diel. HCH	DDT drin	TBT other/notes
<b>Germany</b>																					
D10	0.026	0.004	1.061	2.142	4.108	2.558	0.832	10.972	0.291	0.011											
D12	0.041	0.022	1.500	4.551	2.952	4.043	1.738	12.464	0.410	0.540											
D13	0.009	0.006	0.241	0.543	0.488	0.891	0.553	1.996	1.624	0.001	406.6										
D14																					
D15																					
D17																					
D18	0.001	0.002	0.109	0.340	0.092	0.350	0.122	0.705													
D19	0.020	0.024	1.514	4.738	1.230	4.804	1.711	9.213													
D21	0.008	0.002	0.169	0.495	0.156	0.247	0.190	1.088													
D22	0.007	0.003	0.260	0.672	0.256	0.677	0.260	1.320													
D25	0.002	0.001	0.063	0.191	0.065	0.095	0.072	0.397													
D30	0.015	0.003	0.291	0.862	0.331	0.496	0.336	2.005													
D32	0.028	0.007	0.580	1.824	1.085	0.982	0.683	4.584													
D34																					
D36																					
D37	0.120	0.042	6.852	28.549	9.707	30.072	14.845	66.805		0.417	9592.5	391.5									
D41	0.008	0.009	0.594	1.860	0.491	1.886	0.672	3.616				0.013									
D43	0.053	0.012	1.077	2.884	1.216	3.023	1.112	6.498													
D44	0.009	0.003	0.280	0.750	0.262	0.759	0.289	1.446													
D45	0.053	0.008	0.678	2.056	0.701	1.145	0.771	4.439													
D46	0.200	0.070	3.220	16.500	6.640	14.380	6.670	51.670	21.960				2.5								
D47	0.026	0.036	0.906	3.021	2.644	5.069	1.416	18.278													
<b>Total</b>	0.6	0.3	19.4	72.0	32.4	71.5	32.1	197.5	24.3	1.0	9999.1	327.0				2.5		4.2		8.0	
<b>Iceland</b>																					
IS4																					
IS5																					
IS17																					
IS17-1																					
IS21																					
IS24																					
IS52																					
IS53																					
<b>Total</b>																					
<b>Ireland</b>																					
IRU1																					

## Amounts of Wastes Dumped at Sea in 1996

Table 3b Total loads (indicate the method of determination in Part II)

## Amounts of Wastes Dumped at Sea in 1996

**Table 3b Total loads (indicate the method of determination in Part II)**

Deposit site	OSCOM-codes in tonnes										in kilograms										other notes
	Cd	Hg	As	Cr	Cu	Pb	Ni	Zn	Oil	Total PAH	N	P	CB	CB	CB	CB	Total HCB	γ-HCH	Diel-HCH	DDT	TBT
N/3	0.0003	0.0009								0.003											(6)
N/3	0.001	0.0002								0.011											(6)
N/3	0.0000	0.0002								0.003											(6)
N/3	0.0000	0.0000								0.001											(6)
N/3	0.0000	0.0000								0.001											(6)
N/3	0.001	0.002								0.040											(6)
N/3	0.001	0.001								0.008											(6)
N/3																					(6)
N/5																					(6)
N/5																					(6)
N/5																					(6)
N/5																					(6)
N/5																					(6)
N/5																					(6)
N/6																					(6)
N/7																					(6)
N/7																					(6)
N/9																					(6)
N/9																					(6)
N/10																					(6)
N/10																					(6)
N/11																					(6)
N/11																					(6)
N/12																					(6)
N/12																					(6)
N/12																					(6)
N/12																					(6)
N/12																					(6)
N/12																					(6)
N/12																					(6)
N/12																					(6)
N/14																					(6)
N/14																					(6)
N/15																					(6)
N/15																					(6)
N/15																					(6)

## Amounts of Wastes Dumped at Sea in 1996

**Table 3b Total loads (indicate the method of determination in Part II)**

OSCOM-codes in tonnes											in kilograms												
Deposit site	Cd	Hg	As	Cr	Cu	Pb	Ni	Zn	Oil	Total PAH	N	P	CB	CB	CB	CB	Total HCB	γ-HCH	Diel-HCH	DDT	TBT	other notes	
N/16	0.006	0.004											28	52	101	118	138	153	180	CB			(6)
<b>Spain</b>																							
E/1	0.54	0.11	1.69	8.47	13.54	25.85	4.22	135.77		0.09			0.00	0.05	0.38	0.00	0.55	0.52	2.27	3.78			
E/2	2.47	2.45	38.02	23.70	57.53	101.97	6.37	315.61		37.26			7.06	5.37	33.25	39.28	98.82	57.69	60.98	302.58			
E/3	0.04	0.02	6.52	16.56	2.11	5.27	14.00	21.15		0.19			0.61	0.32	0.55	0.34	0.32	0.41	2.89				
E/4	0.07	0.31	3.75	6.66	5.00	17.11	2.92	38.86		0.24			0.32	0.84	1.43	0.00	2.53	3.36	0.56	9.03			
E/5	1.03	1.14	9.27	9.10	6.53	28.05	5.95	166.85		0.42			0.06	0.26	1.46	0.00	1.56	1.74	0.26	5.36			
E/6	0.00	0.00	0.02	0.04	0.03	0.03	0.02	0.09		0.00			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
E/12	0.01	0.00	0.00	1.55	0.68	0.54	0.72	2.20		0.02			0.01	0.01	0.03	0.01	0.03	0.08	0.31	0.50			
<b>Total</b>	4.2	4.0	59.3	66.1	85.4	178.8	34.2	630.5		38.2			8	7	37	40	104	64	65	324			
<b>Sweden</b>																							
SWE/1																							
SWE/2																							
SWE/3																							
SWE/4																							
SWE/5																							
SWE/6																							
SWE/7																							
SWE/8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
SWE/9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
SWE/10																							
SWE/11																							
SWE/12	0.02	0.00											0.60										
SWE/13																							
SWE/14																							
SWE/15																							
SWE/16													0.06										
SWE/17																							
SWE/18																							
SWE/19																							
SWE/20																							
<b>Total</b>	0.0	0.1	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0	0	0	0	0	0	0	0		
<b>UK</b>																							
UK/CR019	0.00	0.00	0.12	0.18	0.80	0.21	0.90	0.12															
UK/CR23	0.01	0.00	0.06	0.10	0.21	0.09	0.22	2.04															

## Amounts of Wastes Dumped at Sea in 1996

**Table 3b Total loads (indicate the method of determination in Part II)**

OSCOM-codes in tonnes											in kilograms											
Deposit site	Cd	Hg	As	Cr	Cu	Pb	Ni	Zn	Oil	Total PAH	N	P	CB	CB	CB	CB	Total HCB	$\gamma$ -HCH	Diel-HCH	DDT	TBT	other notes
UK/CR030	3E-04	4E-04	0.012	0.033	0.028	0.027	0.043	0.222					28	52	101	118	138	153	180	CB		
UK/CR040	0.00	0.00	0.01	0.08	0.13	0.06	0.12	0.42														
UK/CR050	0.00	0.00	0.01	0.05	0.40	0.05	0.16	1.00														
UK/CR060	0.17	0.20	2.05	2.67	49.82	2.31	27.50	14.67														
UK/CR080	0.00	0.00	0.01	0.16	0.49	0.06	0.18	1.51														
UK/CR110	0.04	0.02	0.77	1.88	3.50	2.25	5.58	14.31														
UK/DV010	0.02	0.01		5.37	1.85	2.47	9.54	10.47														
UK/FI065	0.00	0.00	0.01	0.08	0.01	0.02	0.01	0.18														
UK/FO007	0.00	0.00	0.00	0.01	0.01	0.01	0.05	0.05														
UK/FO010	0.02	0.00	0.35	0.34	0.34	0.58	0.56	3.36														
UK/FO020	0.00	0.00	0.08	0.24	0.34	0.28	0.46	1.43														
UK/FO021	0.00	0.01	0.15	1.12	2.02	1.08	2.27	5.58														
UK/FO025	0.00	0.00	0.01	0.04	0.07	0.04	0.07	0.22														
UK/FO036																						
UK/FO038	0.02	0.02	0.09	0.95	1.19	0.81	2.62	13.95														
UK/FO041	0.00	0.00	0.08	0.19	0.19	0.07	0.26	0.62														
UK/FO044	0.02	0.39	2.37	22.12	16.71	10.91	23.32	43.23														
UK/HU033																						
UK/HU015	0.00	0.00		0.67	0.48	0.38	0.55	1.65														
UK/HU020	0.82	0.52		197.96	82.17	78.44	190.49	474.57														
UK/HU030	0.22	0.14		52.25	21.69	20.70	50.28	125.20														
UK/HU040	0.03	0.02		3.89	2.17	1.39	4.72	10.00														
UK/HU041	0.02	0.01		2.19	1.22	0.78	2.66	5.64														
UK/HU060	0.63	0.40		150.62	62.73	60.24	145.01	360.53														
UK/HU080	1.85	1.17		441.64	183.32	174.99	424.97	1058.26														
UK/HU090	0.18	0.12		3.42	45.10	18.95	18.65	44.08	109.45													
UK/HU160	0.00			0.17	0.21	0.08	0.15	0.31														
UK/HU139	0.01	0.00		2.13	0.69	1.05	1.72	4.17														
UK/HU141	0.01	0.00	0.35	1.86	0.68	0.95	1.39	4.28														
UK/HU150	0.00	0.00		0.20	0.22	0.10	0.58	1.15														
UK/HU160	0.00			1.99	0.74	0.97	2.30	11.12														
UK/IS110	0.06	0.10		7.02	4.57	1.99	7.80	32.19														
UK/IS120	0.00	0.00		0.08	0.05	0.03	0.25	0.27														
UK/IS128	0.01	0.02		1.99	0.74	0.97	2.30	11.12														
UK/IS140	0.40	1.10		75.79	49.45	26.28	222.51	267.68														
UK/IS145	0.00	0.01		0.44	0.28	0.12	0.49	2.01														
UK/IS147																						
UK/IS148																						

## Amounts of Wastes Dumped at Sea in 1996

Table 3b Total loads (indicate the method of determination in Part II)

*OSPAR Commission, 1999;  
Dumping of Wastes at Sea in 1996*

## Amounts of Wastes Dumped at Sea in 1996

**Table 3b Total loads (indicate the method of determination in Part II)**

Deposit site	OSCOM-codes in tonnes										in kilograms										other notes		
	Cd	Hg	As	Cr	Cu	Pb	Ni	Zn	Oil	Total PAH	N	P	CB	CB	CB	CB	Total HCB	$\gamma$ -HCH	Dieldrin	DDT	TBT		
	28	52	101	118	138	153	180	CB	28	52	101	118	138	153	180	CB	28	52	101	118	138	153	180
UK/TH070	0.00	0.00	0.57	0.39	0.28	0.30	1.96																1
UK/TH140	0.00	0.01	1.27	0.49	0.46	0.77	2.18	4.45															0
UK/TH145	0.00	0.00	0.02	0.01	0.01	0.02	0.10																0
UK/TY042	0.02	0.04	6.21	5.19	4.30	9.98	15.59																1
UK/TY070	0.09	0.04	3.53	4.67	2.29	13.47	29.90																11
UK/TY081	0.07	0.03	2.60	3.41	1.69	9.87	21.75																7
UK/TY090	0.04	0.04	5.09	4.26	2.83	14.91	16.91																12
UK/TY130	0.00	0.00	0.84	0.65	0.52	0.97	2.55																2
UK/TY150	0.00	0.00	0.84	0.48	0.33	1.28	2.06																0
UK/TY160	0.15	0.13	45.17	28.23	16.19	54.58	112.92																0
UK/TY180	0.00	0.01	2.35	1.86	1.57	2.06	8.33																3
UK/TY190	0.00	0.00	0.23	0.14	0.12	0.34	0.62																1
UK/W010	0.01	0.00	2.43	0.92	1.05	1.09	4.04																0
UK/W020	0.00	0.00	0.34	0.15	0.14	0.16	0.56																16
UK/W031	0.00	0.00	0.72	0.38	0.52	0.48	1.44																0
UK/W035	0.00	0.00	0.07	0.11	0.03	0.02	0.26																0
UK/W060	0.25	0.11	0.37	46.59	22.45	18.71	28.47	78.11	11.87														23
UK/W080	0.01	0.00	0.97	1.67	1.04	0.76	1.19	3.44															5
UK/W090	0.00	0.00	0.01	0.11	0.17	0.05	0.07	0.25	1.84													0	
UK/W110	0.14	0.16	0.62	1.66	4.69	0.99	12.90	16.67															16
UK/FC030	0.01	0.02	0.01	0.63	1.95	0.20	1.64	3.87															3
UK/FO050	0.01	0.02	0.02	0.81	2.51	0.26	2.11	4.99															0
UK/HU100	0.05	0.01	0.93	1.92	1.83	0.50	4.95	4.12															0
UK/IS071	0.24	0.12	26.82	34.82	4.37	22.88	75.43	1374.98	2948.5	1272.1													1
UK/IS590	0.02	0.03	6.83	4.76	0.95	3.36	22.56																0
UK/MA018	0.15	0.08	0.52	25.93	23.93	3.14	13.44	75.19															0
UK/PH029	0.00	0.01	0.07	0.52	0.05	0.25	0.80		75.9	25.9													0
UK/PO030	0.01	0.00	0.14	0.53	0.09	0.45	1.28		63.9	23.1													0
UK/TH042	0.02	0.02	1.36	3.88	0.53	1.54	6.51		56.6	59.4													4
UK/TH050	0.22	0.19	5.60	32.78	3.45	27.78	55.85																0
UK/TH051	0.08	0.06	1.75	11.32	1.01	7.71	19.33																0
UK/TY060	0.03	0.03	0.46	6.06	0.43	3.50	9.58																0
UK/W060	0.01	0.01	0.36	5.18	0.37	1.05	5.34		105.0	35.7													0
<b>Total</b>	10.1	8.2	18.7	1683.6	944.6	716.8	1904.2	4433.7	1393.1	0.0	3249.9	1416.3	0	0	0	0	0	33	1	3	2	1	1549
																							392

## Amounts of Wastes Dumped at Sea in 1996

**Table 3c Environmental relevant loads (indicate principle and method of calculation in Part II)**

OSCOM-codes in tonnes											in kilograms											
Deposit site	Cd	Hg	As	Cr	Cu	Pb	Ni	Zn	Oil	Total PAH	N	P	CB	CB	CB	CB	Total HCB	$\gamma$ -HCH	Diel-HCH	DDT	TBT	other notes
<b>Belgium</b>																						
B/1																						
B/1																						
B/1																						
B/3																						
B/3																						
B/3																						
B/3																						
B/6																						
B/6																						
B/9																						
B/9																						
B/INT1																						
B/INT2																						
B/INT3																						
B/INT4																						
B/INT5																						
B/INT6B																						
<b>Total</b>																						
<b>Denmark</b>																						
DK/FRB18																						
DK/NUL11																						
DK/NUL25																						
DK/NUL43																						
DK/NUL43																						
DK/RIB02																						
DK/RIB03																						
DK/RIB03																						
DK/RIB04																						
DK/RIN26																						
DK/VIB02																						
DK/VIB13																						
DK/AAR26																						
<b>Total</b>																						

## Amounts of Wastes Dumped at Sea in 1996

Table 3c Environmental relevant loads (indicate principle and method of calculation in Part II)

OSCOM-codes in tonnes												in kilograms									
Deposit site	Cd	Hg	As	Cr	Cu	Pb	Ni	Zn	Oil	Total PAH	N	P	CB	CB	CB	CB	Total HCB	γ-HCH	Diel-DDT	TBT	other notes
Germany	D10																				
	D12																				
	D13																				
	D14																				
	D15																				
	D17																				
	D18																				
	D19																				
	D21																				
	D22																				
	D25																				
	D30																				
	D32																				
	D34																				
	D36																				
	D37																				
	D41																				
	D43																				
	D44																				
	D45																				
	D46																				
	D47																				
	<b>Total</b>																				
Iceland	IS4																				
	IS5																				
	IS7																				
	IS17-1																				
	IS21																				
	IS24																				
	IS32																				
	IS53																				
	<b>Total</b>																				
Ireland	IR1																				

## Amounts of Wastes Dumped at Sea in 1996

**Table 3c Environmental relevant loads (indicate principle and method of calculation in Part II)**

OSCOM-codes in tonnes											in kilograms											
Deposit site	Cd	Hg	As	Cr	Cu	Pb	Ni	Zn	Oil	Total PAH	N	P	CB	CB	CB	CB	CB	Total HCB	Y- HCH	Diel- DDT	TBT drin	other notes
IRL/2													28	52	101	118	138	153	180	CB		
IRL/5																						
IRL/6																						
IRL/8																						
IRL/9																						
IRL/15																						
IRL/17																						
IRL/20																						
IRL/22																						
IRL/23																						
IRL/26																						
IRL/27																						
IRL/28																						
<b>Total</b>																						
<b>The Netherlands</b>																						
NL/5	1.239	0.466	16.210	0.000	3.994	31.637	0.000	141.295	71.774	3.028	ND	ND	9	5	5	3	4	8	4	2	4	
NL/6	0.040	0.013	0.567	0.000	0.000	1.913	0.000	4.027	3.847	0.169	ND	ND	0	0	0	0	0	0	0	0	ND	
NL/7	0.034	0.050	0.000	0.000	0.000	3.475	0.000	0.000	130.453	0.707	ND	ND	1	1	0	2	1	1	0	0	ND	
NL/8	0.276	0.132	10.439	0.000	10.555	0.000	30.603	0.000	1.526	ND	ND	5	2	2	2	4	2	2	2	2	ND	
NL/10	0.000	0.000	0.241	0.000	0.125	0.173	0.080	0.000	0.037	ND	ND	0	0	0	0	0	0	0	0	0	ND	
NL/11	0.481	0.122	12.907	8.661	13.360	31.457	1.110	18.893	39.737	2.622	ND	ND	1	2	5	2	6	6	3	1	1	ND
NL/13	0.048	0.019	0.434	0.000	0.000	1.938	0.000	4.097	30.453	0.119	ND	ND	1	1	1	1	1	1	1	1	ND	
NL/14	0.000	0.055	1.979	0.000	2.352	8.200	0.000	18.985	38.842	0.396	ND	ND	1	1	1	1	1	1	1	1	ND	
NL/15	0.045	0.067	2.820	0.000	0.000	2.824	0.000	0.000	170.241	0.577	ND	ND	2	1	2	1	3	2	0	0	0	
<b>Total</b>	2.1	0.9	45.0	8.7	19.8	92.0	1.2	217.9	485.3	9.1	ND	ND	18	13	17	10	19	23	12	7	9	0
<b>Norway</b>																						
N/1																						
N/1																						
N/1																						
N/1																						
N/2																						
N/2																						
N/3																						

## Amounts of Wastes Dumped at Sea in 1996

**Table 3c** Environmental relevant loads (indicate principle and method of calculation in Part II)

*OSPAR Commission, 1999:  
Dumping of Wastes at Sea in 1996*

## Amounts of Wastes Dumped at Sea in 1996

**Table 3c Environmental relevant loads (indicate principle and method of calculation in Part II)**

OSCOM-codes in tonnes											in kilograms											
Deposit site	Cd	Hg	As	Cr	Cu	Pb	Ni	Zn	Oil	Total PAH	N	P	CB	CB	CB	CB	Total HCB	Y-	Diel-	DDT	TBT	other notes
Ni/6													28	52	101	118	138	153	180	CB	HCH	drin
<b>Total</b>																						
<b>Spain</b>	E1																					
	E2																					
	E3																					
	E4																					
	E5																					
	E6																					
	E/12																					
<b>Total</b>																						
<b>Sweden</b>	SWE1																					
	SWE2																					
	SWE3																					
	SWE4																					
	SWE5																					
	SWE6																					
	SWE7																					
	SWE8																					
	SWE9																					
	SWE10																					
	SWE11																					
	SWE12																					
	SWE13																					
	SWE14																					
	SWE15																					
	SWE16																					
	SWE17																					
	SWE18																					
	SWE19																					
	SWE20																					
<b>Total</b>																						
<b>UK</b>	UK/CR019																					
	UK/CR023																					

## Amounts of Wastes Dumped at Sea in 1996

**Table 3c Environmental relevant loads (indicate principle and method of calculation in Part II)**

OSCOM codes Deposit site	in tonnes											in kilograms							TBT notes		
	Cd	Hg	As	Cr	Cu	Pb	Ni	Zn	Oil	Total PAH	N	P	CB	CB	CB	CB	Total HCB	$\gamma$ -HCH	Diel-HCH	DDT	TBT
UK/CR030																					
UK/CR040													28	52	101	118	138	153	180	CB	
UK/CR050																					
UK/CR060																					
UK/CR080																					
UK/CR110																					
UK/DW010																					
UK/F0065																					
UK/F0070																					
UK/F0010																					
UK/F0020																					
UK/F0021																					
UK/F0025																					
UK/F0036																					
UK/F0038																					
UK/F0041																					
UK/F0044																					
UK/HB033																					
UK/HU015																					
UK/HU020																					
UK/HU030																					
UK/HU040																					
UK/HU041																					
UK/HU060																					
UK/HU080																					
UK/HU090																					
UK/HU139																					
UK/HU141																					
UK/HU150																					
UK/HU160																					
UK/IS110																					
UK/IS120																					
UK/IS128																					
UK/IS140																					
UK/IS145																					
UK/IS147																					
UK/IS148																					

**Amounts of Wastes Dumped at Sea in 1996**

**Table 3c Environmental relevant loads (indicate principle and method of calculation in Part II)**

OSCOM-codes site	in tonnes											in kilogramms														
	Deposit	Cd	Hg	As	Cr	Cu	Pb	Ni	Zn	Oil	Total PAH	N	P	CB	CB	CB	CB	Total HCB	CB	CB	CB	Total HCB	$\gamma$ - HCH	Diel- drin	DDT	TBT
UK/IS149																										
UK/IS170																										
UK/IS192																										
UK/IS200																										
UK/IS205																										
UK/IS240																										
UK/IS241																										
UK/IS250																										
UK/IS285																										
UK/IS400																										
UK/IS420																										
UK/IS636																										
UK/LU083																										
UK/LU084																										
UK/LU085																										
UK/LU086																										
UK/LU110																										
UK/LU115																										
UK/LU130																										
UK/LU140																										
UK/MA010																										
UK/MA021																										
UK/MA025																										
UK/MA050																										
UK/MA501																										
UK/MA520																										
UK/MA545																										
UK/MA565																										
UK/PL031																										
UK/PL060																										
UK/PL075																										
UK/PO070																										
UK/PO090																										
UK/TH005																										
UK/TH039																										
UK/TH041																										
UK/TH065																										

## Amounts of Wastes Dumped at Sea in 1996

**Table 3c Environmental relevant loads (indicate principle and method of calculation in Part II)**

OSCOM-codes in tonnes		in kilograms																					
Deposit site	Cd	Hg	As	Cr	Cu	Pb	Ni	Zn	Oil	Total PAH	N	P	CB	CB	CB	CB	Total HCB	Y-	Diel-	DDT	TBT	other notes	
UK/TH070													28	52	101	118	138	153	180	CB			
UK/TH140																							
UK/TH145																							
UK/TY042																							
UK/TY070																							
UK/TY081																							
UK/TY090																							
UK/TY130																							
UK/TY150																							
UK/TY160																							
UK/TY180																							
UK/TY190																							
UK/W010																							
UK/W020																							
UK/W031																							
UK/W035																							
UK/W060																							
UK/W080																							
UK/W090																							
UK/W110																							
UK/F0030																							
UK/F0050																							
UK/HU100																							
UK/A071																							
UK/A590																							
UK/MA018																							
UK/PL020																							
UK/P0030																							
UK/TH042																							
UK/TH050																							
UK/TY060																							
UK/W060																							
<b>Total</b>																							

## ADDITIONAL INFORMATION

(Referring to Part II of the Formats for the Annual Reporting of Amounts of Wastes Dumped at Sea adopted at PRAM 1995)

### 1. Deposit Site

#### Germany

The dumping site D/47 "Harbors of Cuxhaven" is new.

#### The Netherlands

NL 5 (Loswal North) has been closed for dumping as of July '96.

NL 8 (Loswal Northwest) is opened for dumping as of July '96.

Both sites are used for the dumping of sludge from Rotterdam-harbour in 1996. Changing the dumping site for Rotterdam Harbour is based on an environmental impact assessment.

Location of NL 8:

longitude/latitude		UTM (3°E)	
52°8'4.552" N	4°3'54.090" E	572897.55	5776663.96
52°8'4.135" N	4°7'25.244" E	576914.21	5776588.03
52°9'4.479" N	4°7'28.898" E	576952.39	5778607.96
52°9'4.898" N	4°3'57.659" E	572935.74	5778683.87

### 2. Method of determination

#### Belgium

Samples are being taken at several times of the year. Analysis is carried out on the whole sediment (< 2 mm). The mean concentration of the contaminants is being calculated. This average concentration is multiplied by the quantity dredged in order to obtain the total load.

#### Spain

The following methods of determination have been used:

##### *Grain size fraction*

The analysis have been carried out on grain size fractions smaller than 2 mm, except for the analysis of heavy metals, PAH's and PCB's of the deposit sites E/2 (Bilbao), E/3 (Santander), E/6 (Ferrol) and E/12 (Cádiz), which were carried out on a smaller than 0,063 mm fraction.

##### *Sample preparation*

Drying of sample at 60°C during 24h → sieving of sample with a 2 mm sieve → separation of fraction smaller than 0,063 mm, using

water and a 0,063 mm plastic sieve → homogenisation and grinding of sample in an agate mortar → determination of humidity by drying at 105°C up to constant weight.

### ***Heavy metals analysis***

*For Cd, Pb, Cu, Zn, Ni and Cu:*

Acid digestion with nitric acid in a microwave oven → quantitative determination by atomic absorption spectrophotometry, in flame or in graphite chamber, depending on the sample concentration.

*for As:*

Acid digestion in microwave oven with nitric acid → previous reduction of the sample → determination by hydride generation matched to an atomic absorption spectrophotometer.

*for Hg:*

Acid digestion in microwave oven with nitric acid → determination by cold steam technique matched to atomic absorption spectrophotometry.

### ***Poly-chlorinated-biphenyls***

Extraction of homogenised and grinded sample with a methylene chloride:hexane (1:1) mixture → extract concentration and passing through an anhydrous sodium sulphate column → sulphur elimination by purification with powder of copper → extract purification in column, avoiding the organochlorated compounds with a mixture of ethylic ether in hexane at successive concentrations of 6, 15 and 50%, ending with pure hexane → quantitative determination by gas chromatography with electron capture detector, using an HP-S capillary column of 0,22 mm inner diameter.

### ***Polyaromatic hydrocarbons***

Extraction by means of decantation, mixture with acetone:hexane (1:1) and ultrasounds → purification by means of decantation with salt saturated with sodium sulphate → determination using gas chromatography with a 60 mm capillary column, BOD5 and flame ionisation detector → confirmation, when necessary, by means of mass chromatography.

### ***Organic matter***

Two type of techniques have been used:

*As volatile solids:*

Drying of sample at 105°C, grinding in a mortar and combustion in muffle at 550°C up to constant weight → determination of total quantity as follows:

$$\text{TOC mass (tn)} = \frac{0,35 \times \text{Volatile solids concentration (\%)} \times \text{dumped mass (tn)}}{100}$$

(this formula is being used in "Recommendations for the management of dredged material in the ports of Spain")

As Total organic carbon (TOC):

Drying at 105°C, elimination of inorganic carbon with HCL and determination by means of calcination and detection of CO<sub>2</sub> with an infrared detector (elementary analysis) → determination of the total quantity as follows:

$$TOC \text{ mass (tn)} = \frac{TOC \text{ concentration (\%)} \times \text{ dumped mass (tn)}}{100}$$

### UK

All analyses of dredged material on <2mm fraction. Methods of determination as specified in reports listed below:

Allchin, C.A., Kelly,C.A. and Portmann, J.P. (1989) Methods of analysis for chlorinated hydrocarbons in marine and other samples. Aquatic Environmental Protection: Analytical Methods, MAFF Directorate of Fisheries Research, Lowestoft, (6), 25 pp.

Jones,B.R. and Laslett,R.E. (1994) Methods for analysis of trace metals in marine and other samples. Aquatic Environmental Protection: Analytical Methods, MAFF Directorate of Fisheries Research, Lowestoft, (11), 29 pp.

Law,R.J., Fileman,T.W. and Portmann,J.P. (1988) Methods of analysis of hydrocarbons in marine and other samples. Aquatic Environmental Protection: Analytical Methods, MAFF Directorate of Fisheries Research, Lowestoft, (2), 25 pp.

Waldock,M.J., Waite,M.E., Miller,D., Smith,D.J. and Law,R.J. (1989) The determination of total tin and organotin compounds in environmental samples. Aquatic Environmental Protection: Analytical Methods, MAFF Directorate of Fisheries Research, Lowestoft, (4), 25 pp.

## 3. CALCULATION OF ENVIRONMENTALLY RELEVANT LOADS

[no information received]

## 4. TOXICITY

[no information received]

## 5. OTHER RELEVANT INFORMATION

[no information received]

## **FOOTNOTES TO ALL TABLES**

**Table 1**

- (1) The permit was issued for 9months: 01.12.96-31.08.97. The dredging permit was delivered for the works for the laying of the Interconnector gaspipeline.
- (2) No permits issued, however, dumping operations were carried out under the control of national authorities.
- (3) There is a general permit in Iceland for disposing dredged material when the contamination of the sediment does not exceed given threshold values.
- (4) Norway reported in some cases the amounts of dredged material in m<sup>3</sup>. In such cases, the calculation factor of 1,2 tonnes dredged material / m<sup>3</sup> of dredged material was used.
- (5) Norway reported in previous years under the waste category "Inert material" the filling/protection of beaches and coastlines with natural stones from land. Since this is not regarded as dumping under the OSPAR Convention, Norway does not report on these operations anymore.
- (6) No information was available in Norway as regards the weight of the 18 vessels. However, they were all under 150 ft. long and prior to dumping all chemicals and removable parts were removed.
- (7) Two dumping operations are reported (1036 acetylen gas cylinders, with one cylinder = approx. 40 kg weight and 175 m<sup>3</sup> of concrete waste (calculation factor: 2,5 i.e. 175 m<sup>3</sup> = 437 tonnes of concrete waste ).
- (8) UK licensed tonnages are usually on a wet weight basis. These are the estimated dry weight equivalents.
- (9) In addition to the licensed sewage sludge tonnage in Table 1, 12 206 tonnes dry weight equivalent (329 015 tonnes wet weight) was permitted for disposal at sea under an administrative authorisation from the Department of the Environment for Northern Ireland in 1996.
- (10) 750 tonnes fish waste, consisting of shell material only, was licensed for deposit in the sea. 16 tonnes of the material was deposited directly onto the intertidal zone in 1996 but is not dumping under the terms of the Convention.

**Table 2**

- (1) The following level 2 concentrations apply in Norway:  
PCB = 0,300 mg/kg, PAH= 20 mg/kg, Cd = 10 mg/kg,  
Hg = 5 mg/kg and Pb = 1500 mg/kg.  
The maximum measured concentration of contaminants in the dredged material were:  
PCB = 0,304 mg/kg, PAH = 30,27 mg/kg, Cd = 0,6 mg/kg,  
Hg = 0,77 mg/kg and Pb = 27,3 mg/kg.

**Tables 3a, 3b, 3c**

- (1) The material dredged in Icelandic waters is usually bottom sediment consisting of clay, gravel and sand. Dumping operations are usually carried out within 2 nautical miles from the harbours. No dumping has been carried out in Convention waters. The analysis of the chemical composition of the material was not regarded necessary. The selection of dumping sites takes into account that the sediment to be dumped should have similar characteristics than that occurring at the site. Half of the dredged material dumped in 1996 came from capital dredging, the other half resulted from maintenance dredging in harbors. The latter sediments consist mainly of newly eroded material which was transported by ocean and tidal currents into the harbors.
- Amounts dumped have been reported in tonnes dry weight. Wet weight values, which Iceland reported up to 1994, can be converted by multiplying with a conversion factor of 0,697.
- (2) information on these dumping operations is given in footnotes 4 and 5 to Table 1.
- (3) Internal Waters site
- (4) For sewage sludge, data under "Total Organic Carbon" is the organic matter content derived by loss-on-ignition.
- (5) Data on other contaminants is available from Ireland and the UK
- (6) Norway calculated the total loads from samples of the dredged material which were analysed to find the concentrations of different substances. For the total loads, the concentrations were multiplied by the amounts dumped. Empty cells indicate that no analysis had been carried out (primarily clean material).

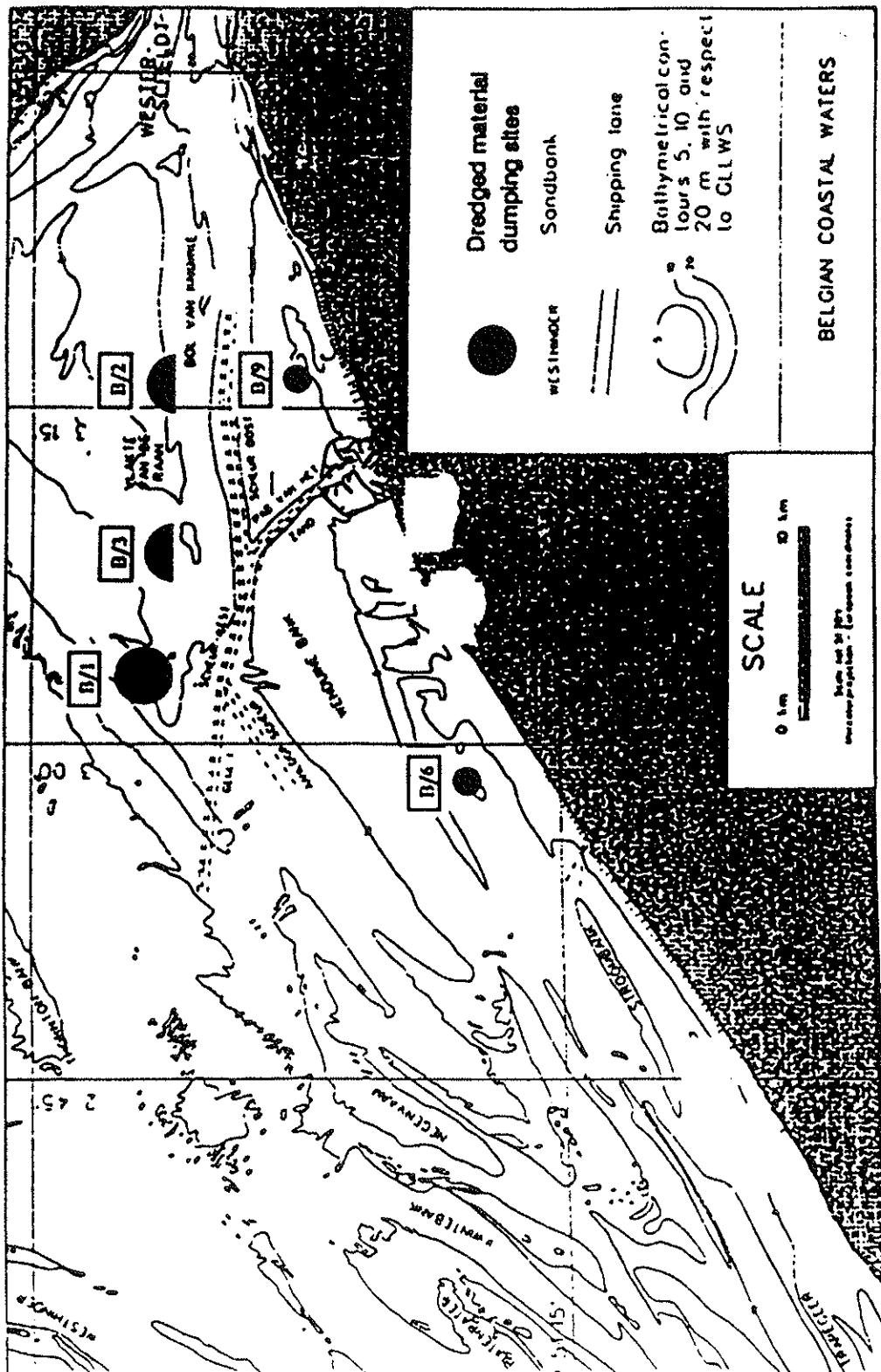
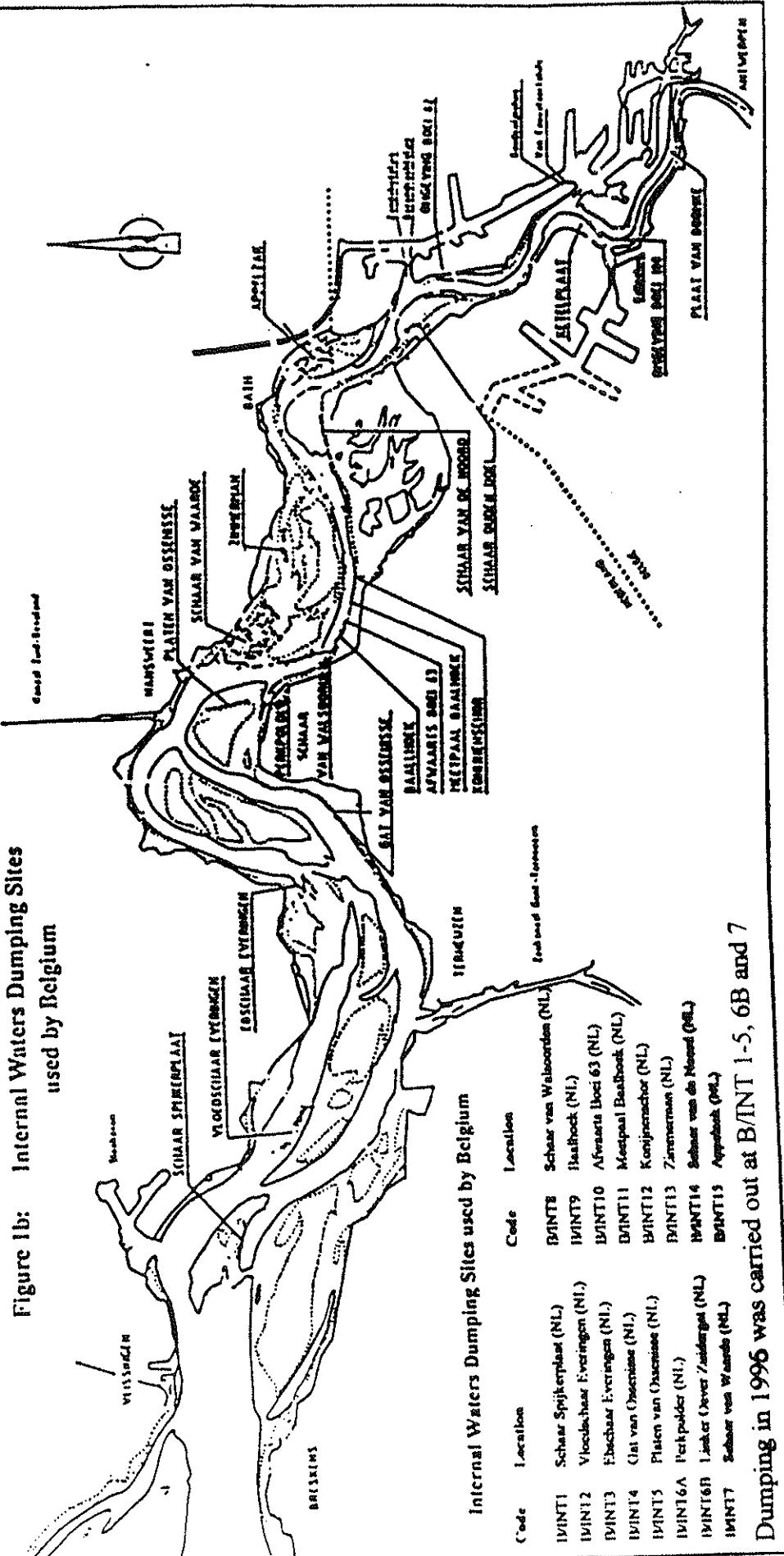


Figure 1a      Approximate positions of the dumping sites for dredged material used by Belgium in 1996  
B/1, B/3, B/6 and B/9

**Figure 1b: Internal Waters Dumping Sites used by Belgium**



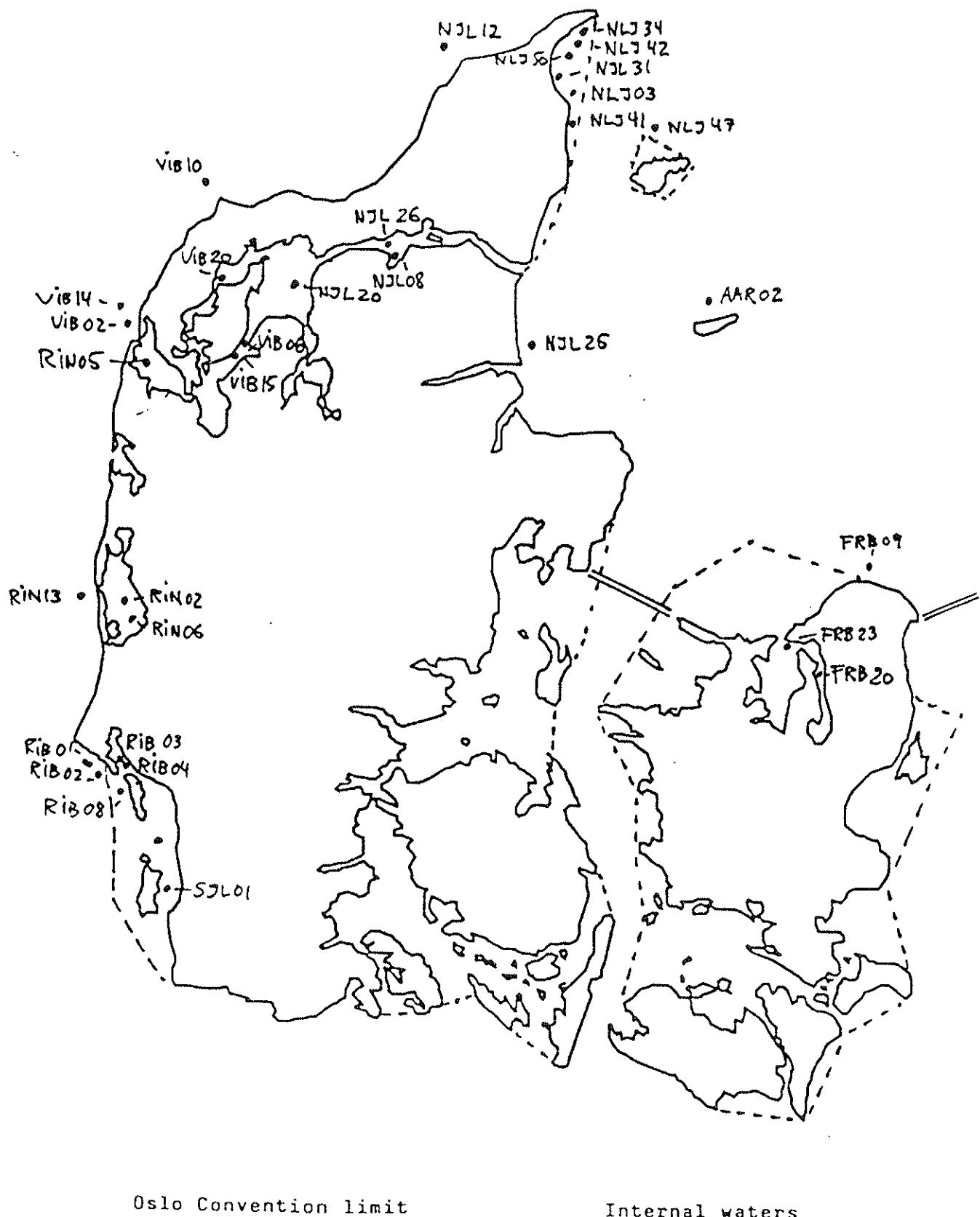
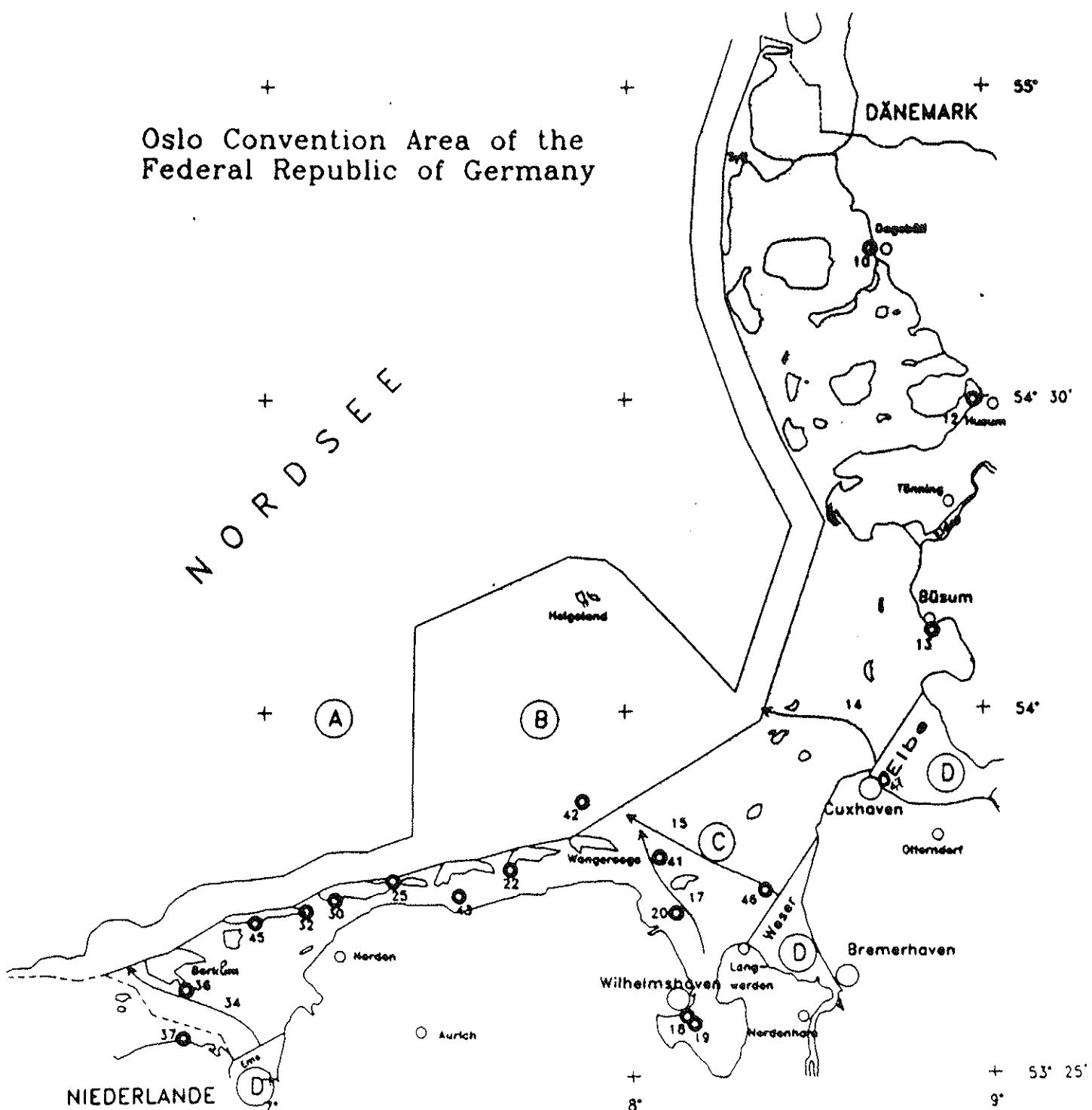


Figure 2 Approximate positions of the dumping sites for dredged material used by Denmark in 1996

Oslo Convention Area of the  
Federal Republic of Germany



Dumping of dredged materials

A, B = Convention waters

C, D = Internal waters

● = sites of dumping of dredged materials (1996)

Figure 3: Approximate positions of dumping sites for dredged materials used by Germany in 1996

D/10, D/12-D/15, D/17-D/19, D/21, D/22, D/25, D/30, D/32, D/34, D/36, D/37, D/41, D/43-D/47

# Disposal of dredged material 1996

OSPAR Commission, 1999:  
Dumping of Wastes at Sea in 1996

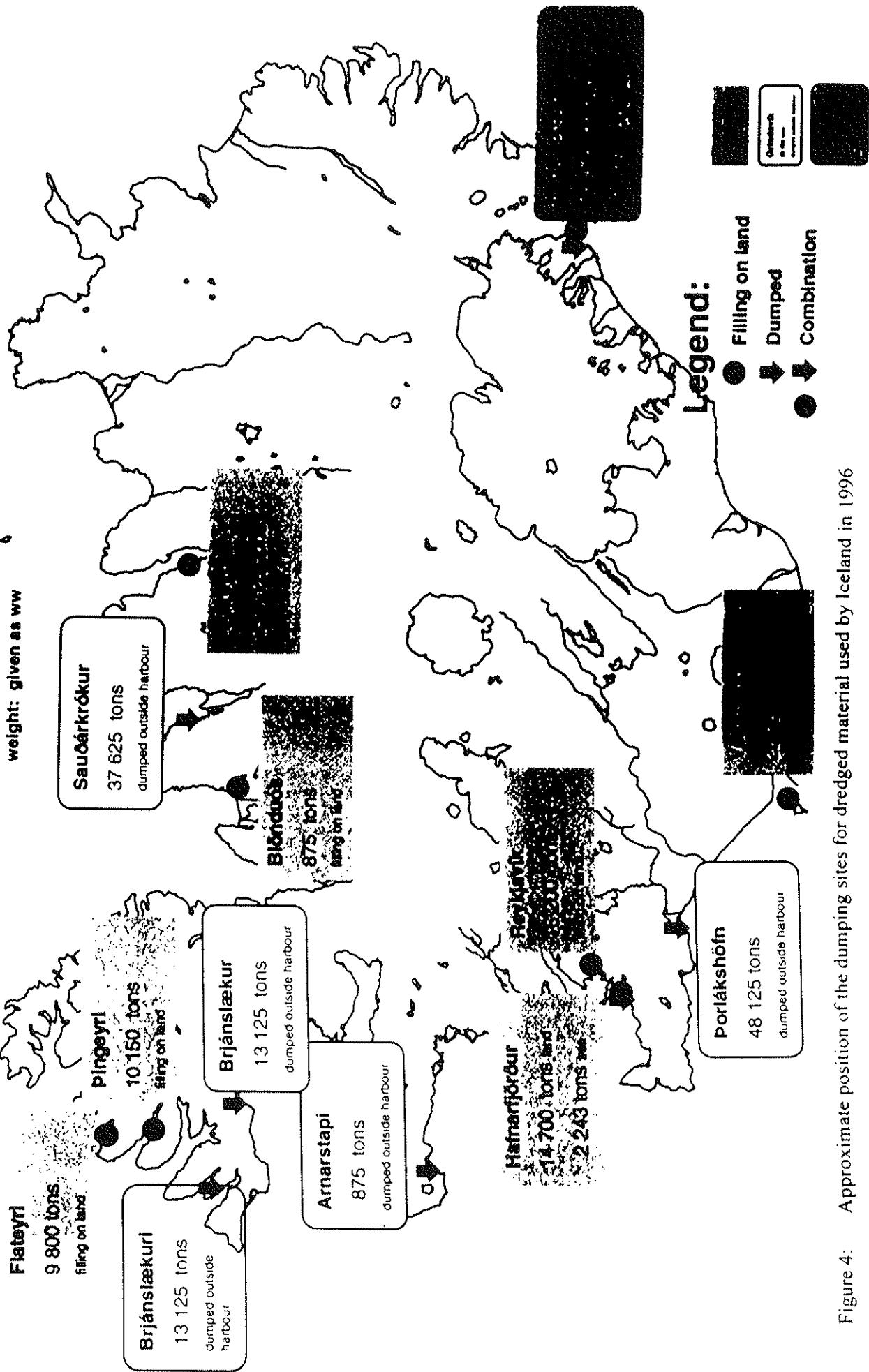


Figure 4: Approximate position of the dumping sites for dredged material used by Iceland in 1996

Dumpsite Locations - Ireland.

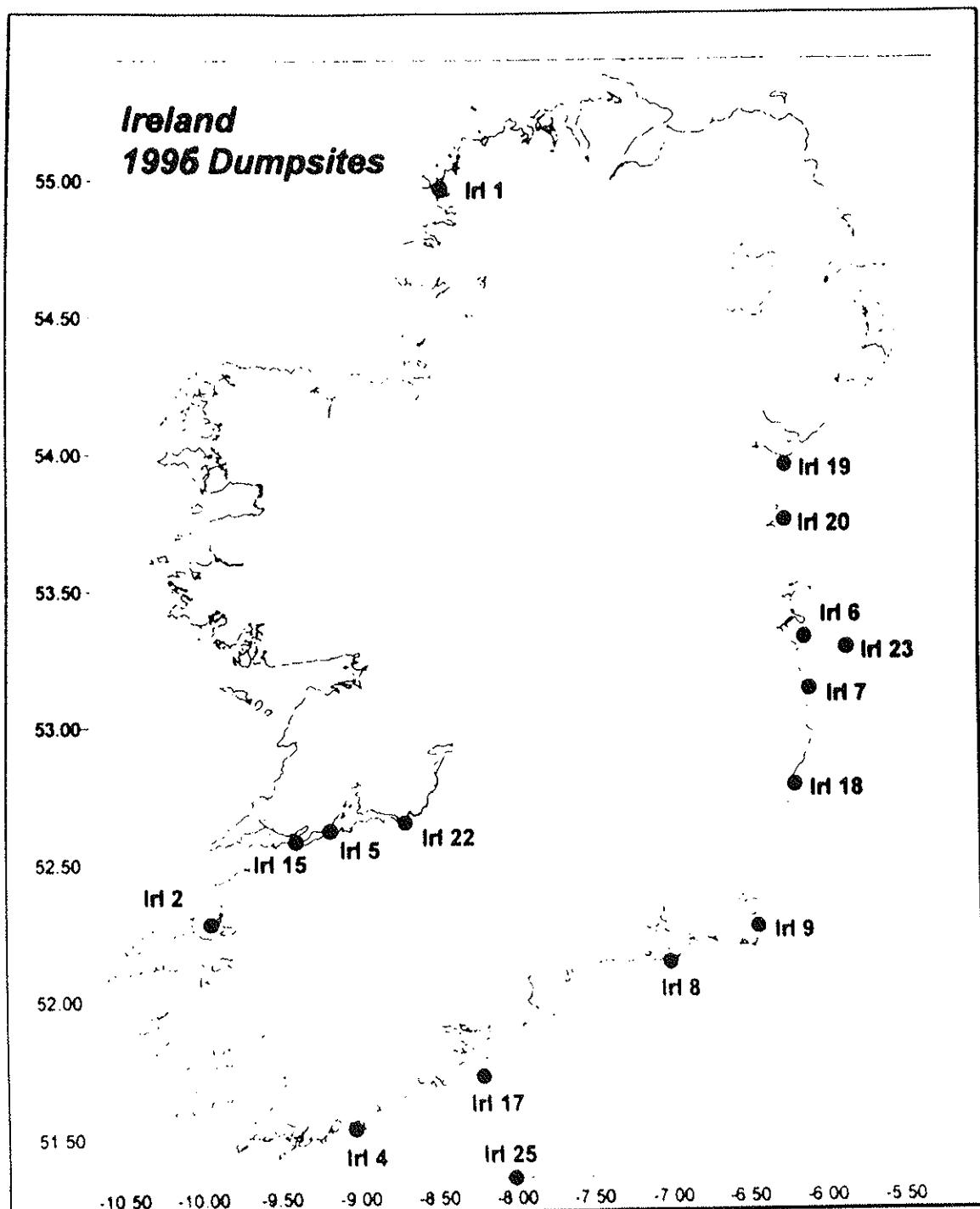


Figure 5: Approximate positions of the dumping sites used by Ireland in 1996

dredged material

IRL/1-IRL/2, IRL/5-IRL/6, IRL/8-IRL/9, IRL15,  
IRL/17, IRL/20, IRL/22, IRL/26, IRL/28

sewage sludge

IRL/23

fish waste

IRL/9

inert materials of natural origin

IRL/27

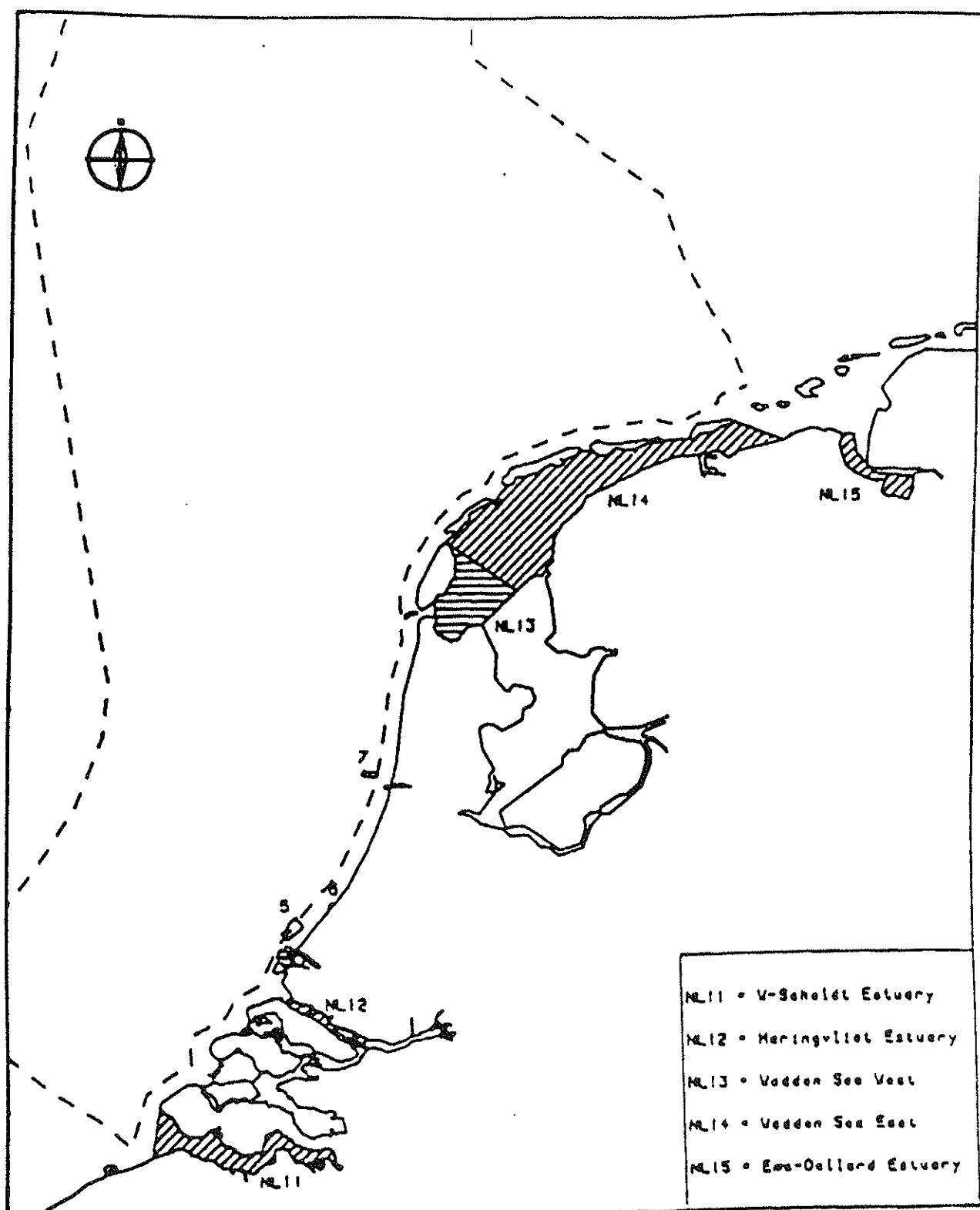


Figure 6: Approximate positions of the dumping sites for dredged materials used by the Netherlands in 1996

NL/5-NL/8, NL/10, NL/11, NL/13-NL/15

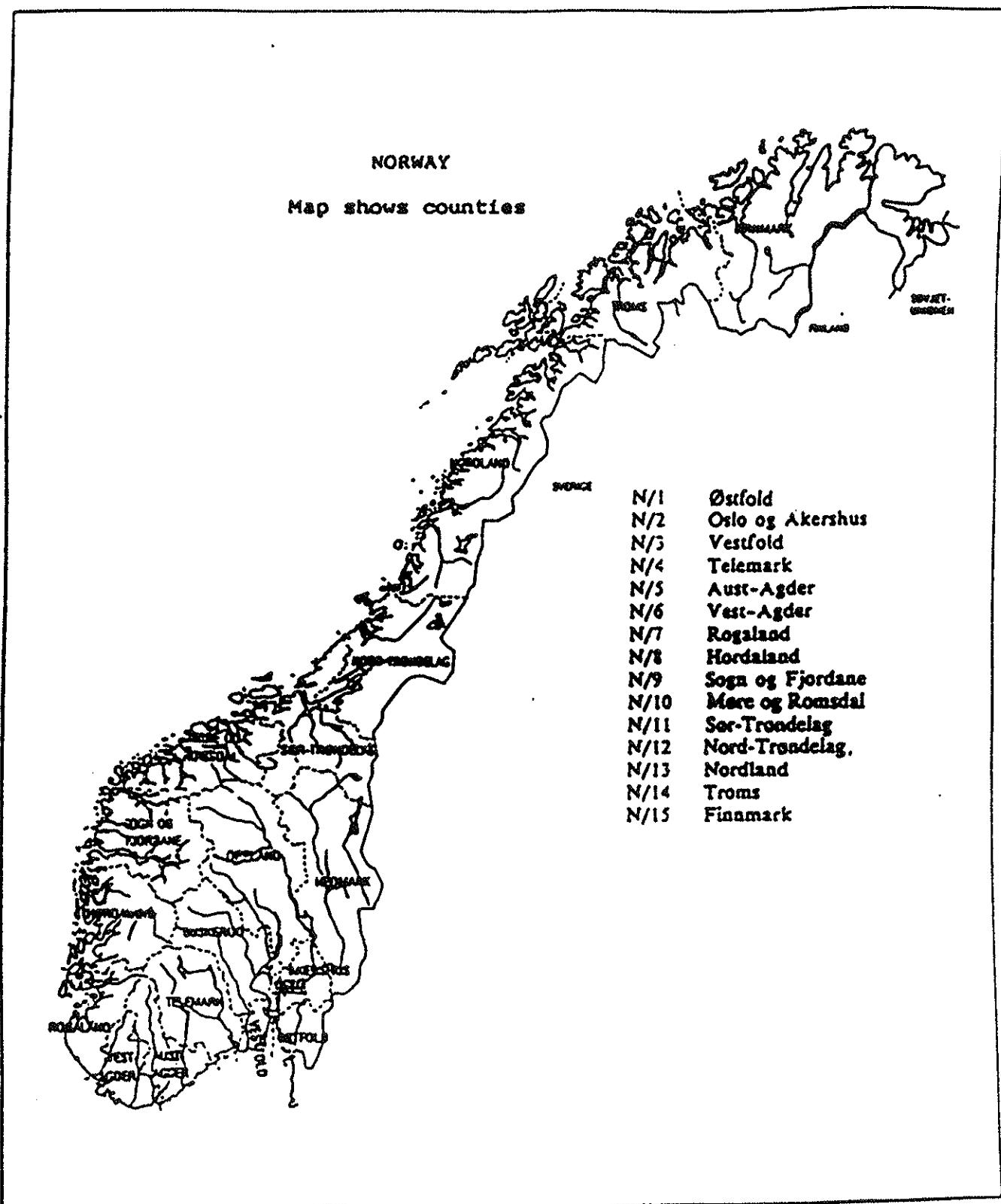


Figure 7: Norwegian Counties bordering internal waters of Norway in which wastes were dumped in 1996

dredged material

other wastes (ships and bulky wastes)

N/1-N/3, N/5-N/7, N/9-N/12, N/14, N/15

N/7, N/9-N/12,N/14, N/16

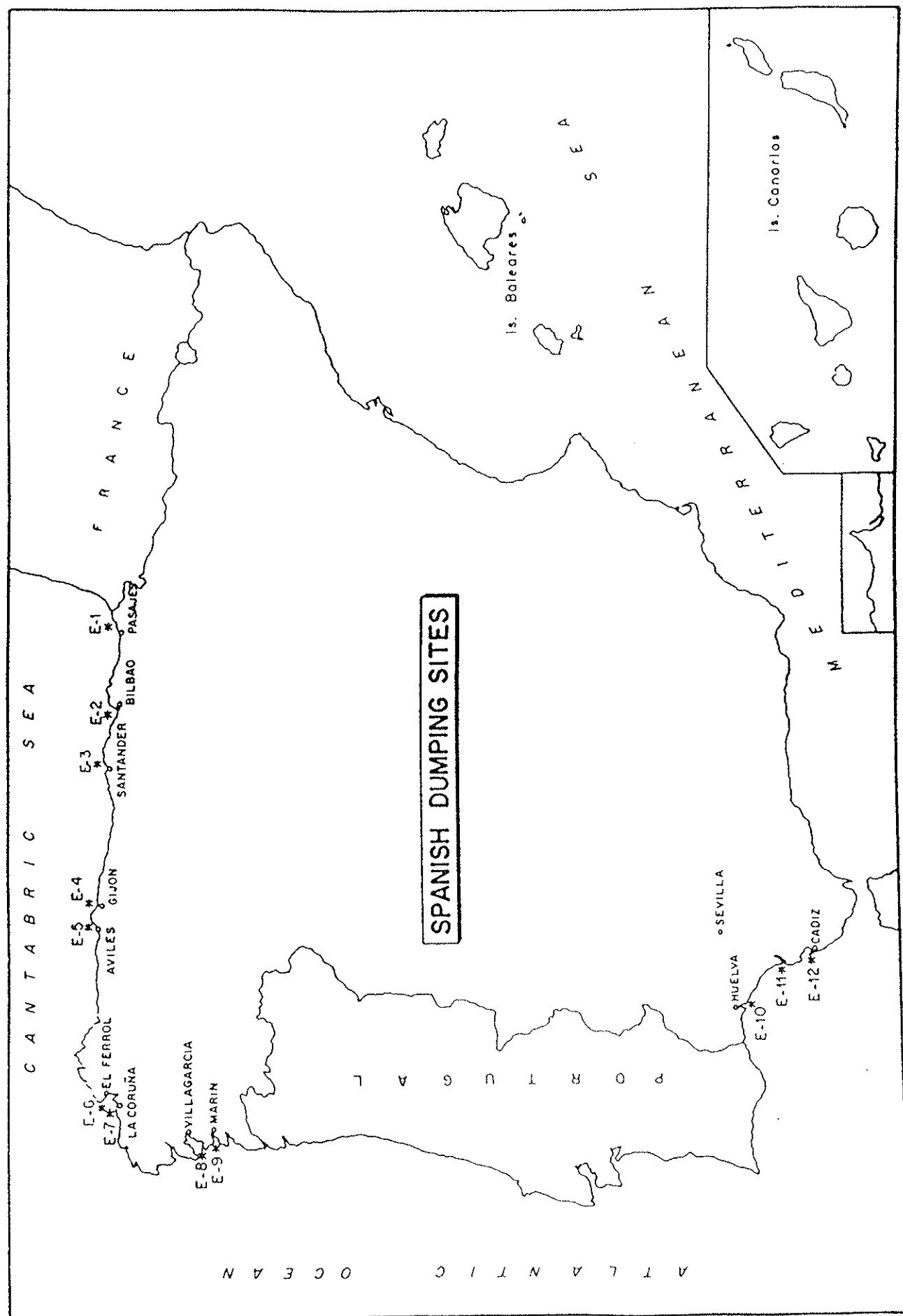


Figure 8: Approximate positions of the dumping sites for dredged materials used by Spain in 1996

E/1-E/6, E/12

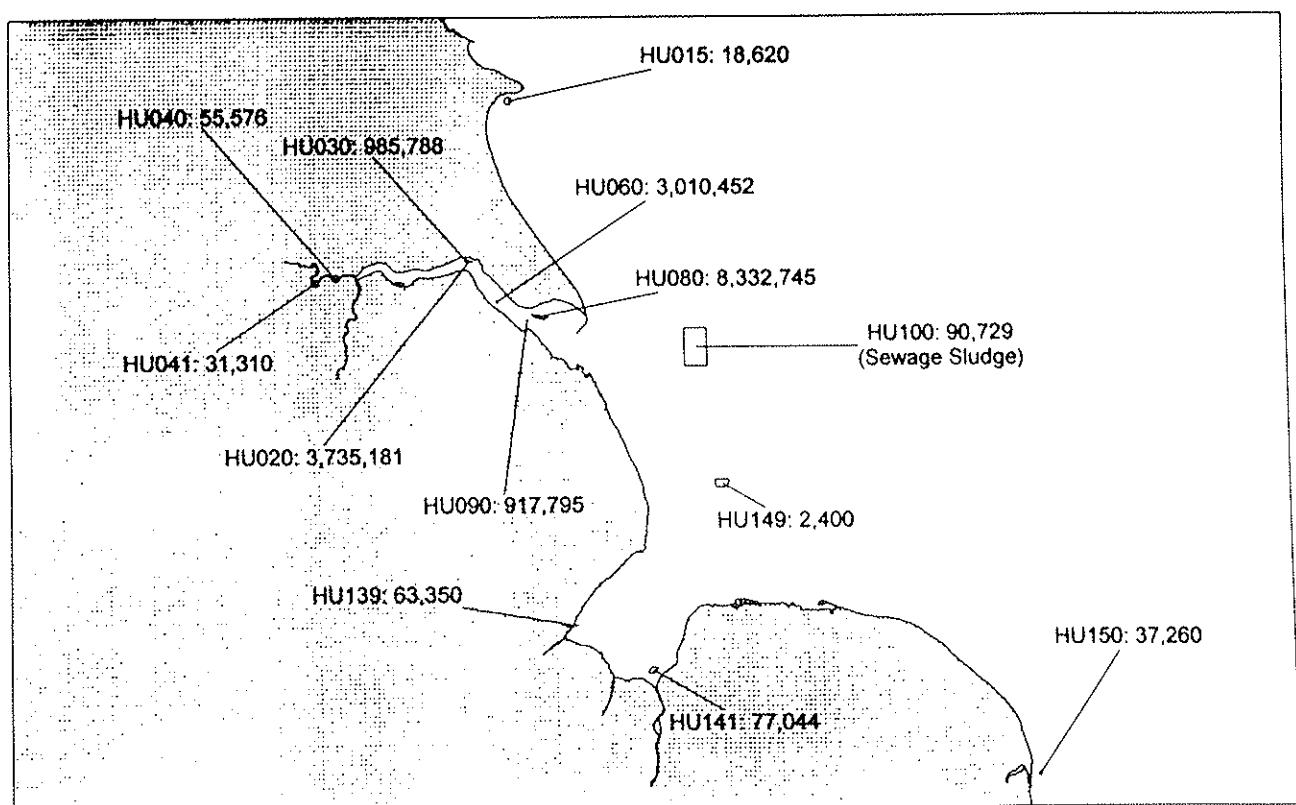
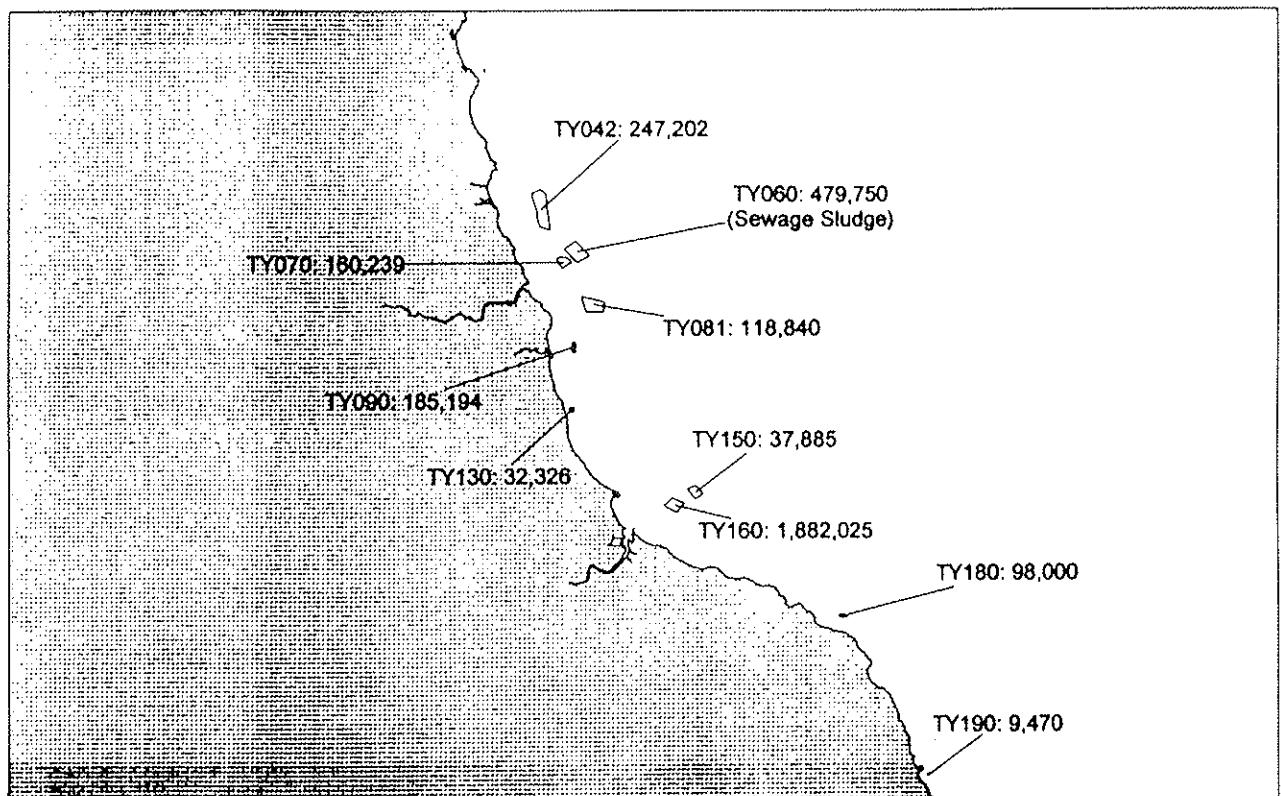


Figure 9a: Approximate positions, site codes and quantities disposed of (in tonnes) by the United Kingdom in 1996  
(North Eastern England and Eastern England)  
All waste is dredged material unless waste type is stated

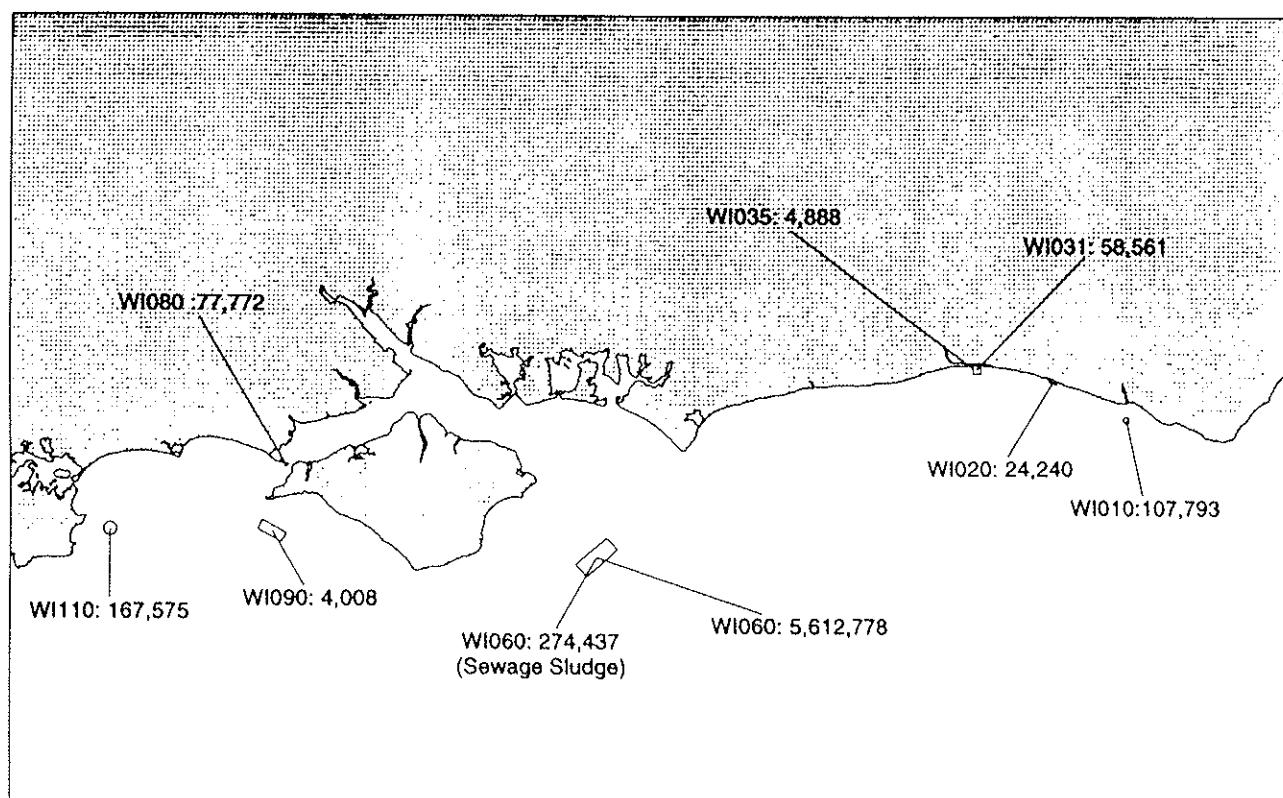
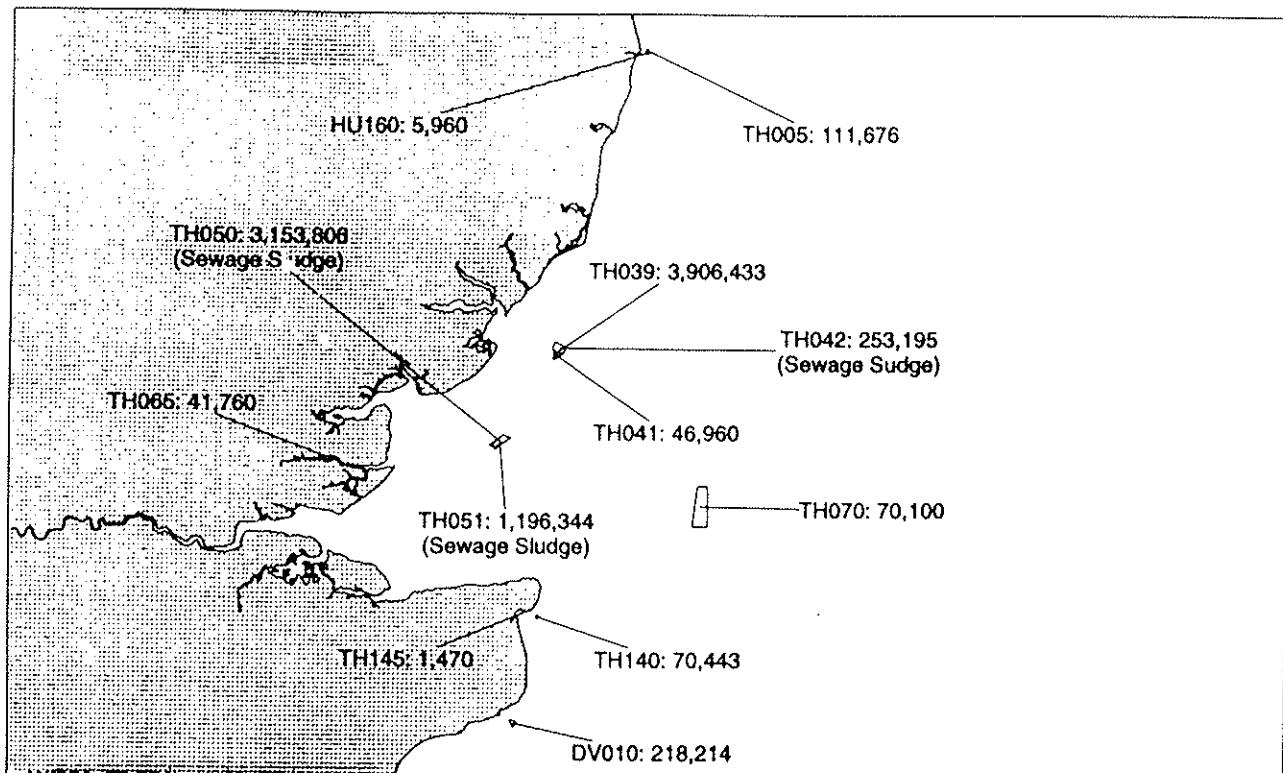


Figure 9b: Approximate positions, site codes and quantities disposed of (in tonnes) by the United Kingdom in 1996  
(South Eastern England and Southern England)  
All waste is dredged material unless waste type is stated

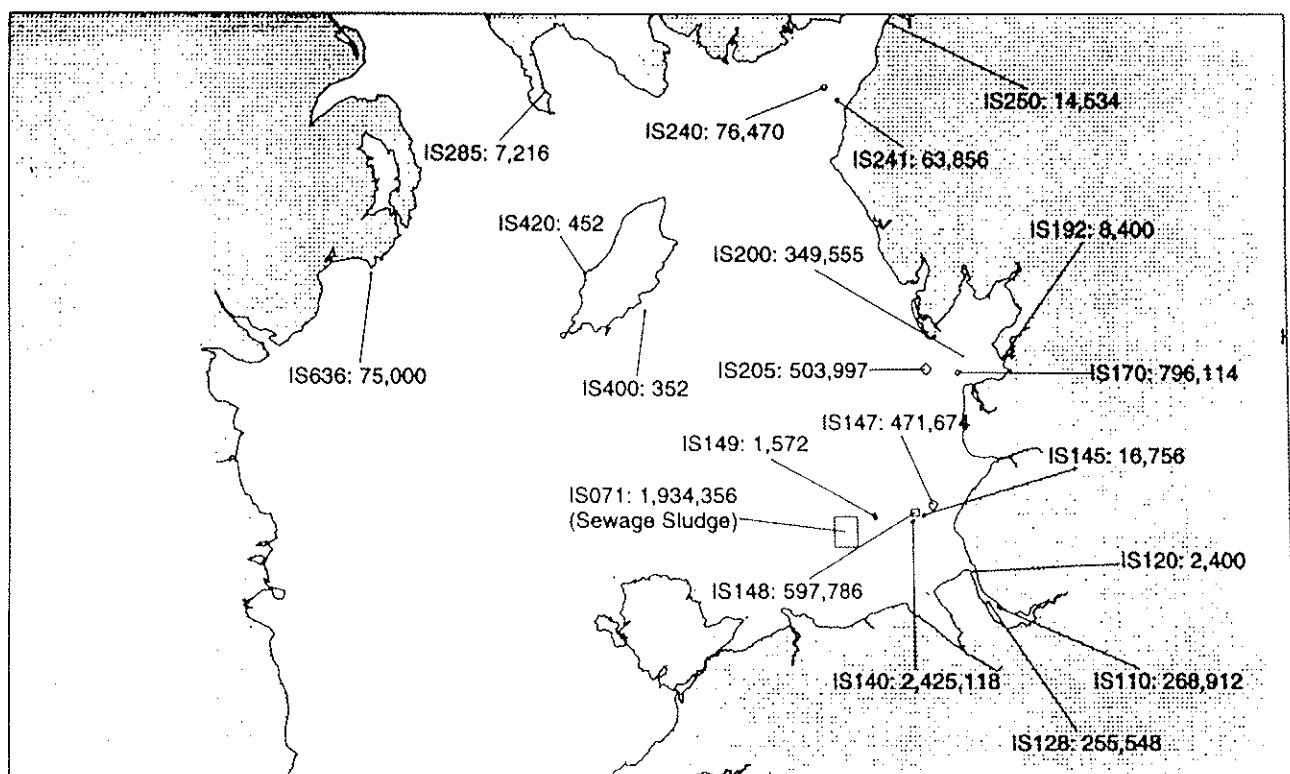
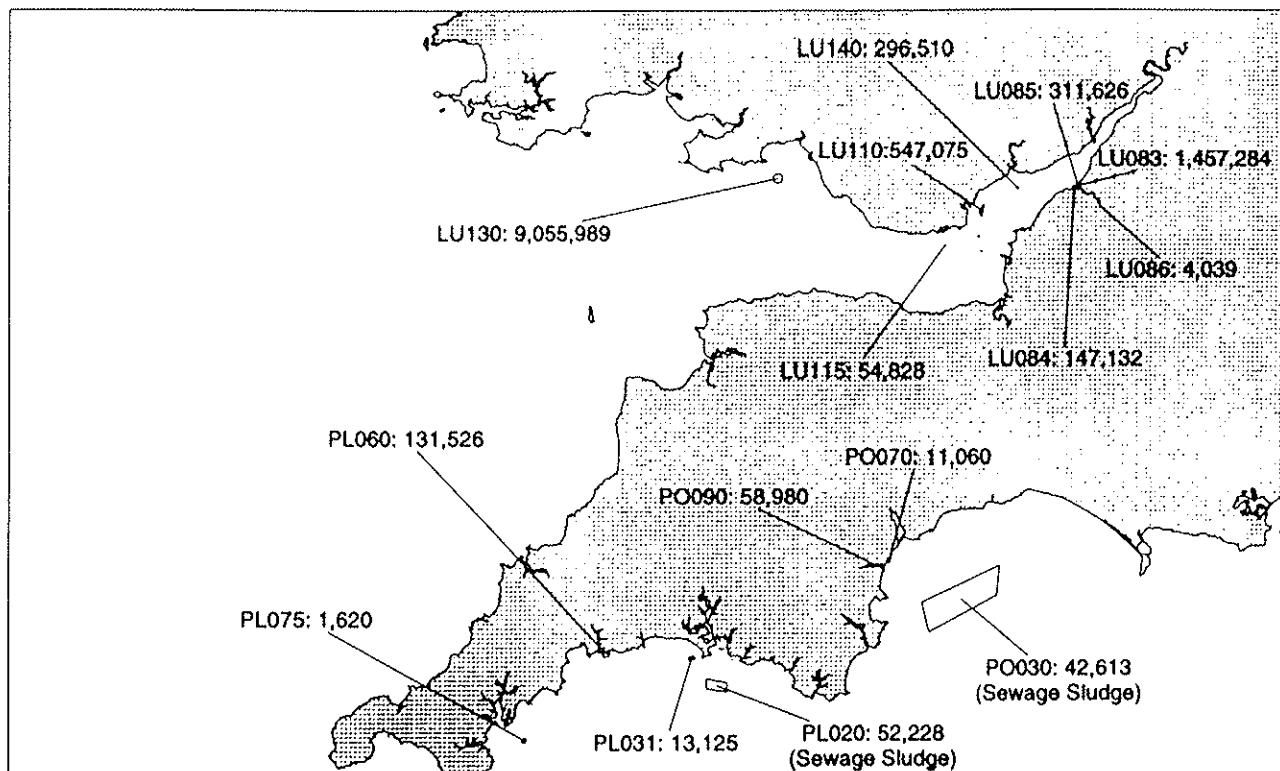


Figure 9c: Approximate positions, site codes and quantities disposed of (in tonnes) by the United Kingdom in 1996  
(South West England and North Western England)  
All waste is dredged material unless waste type is stated

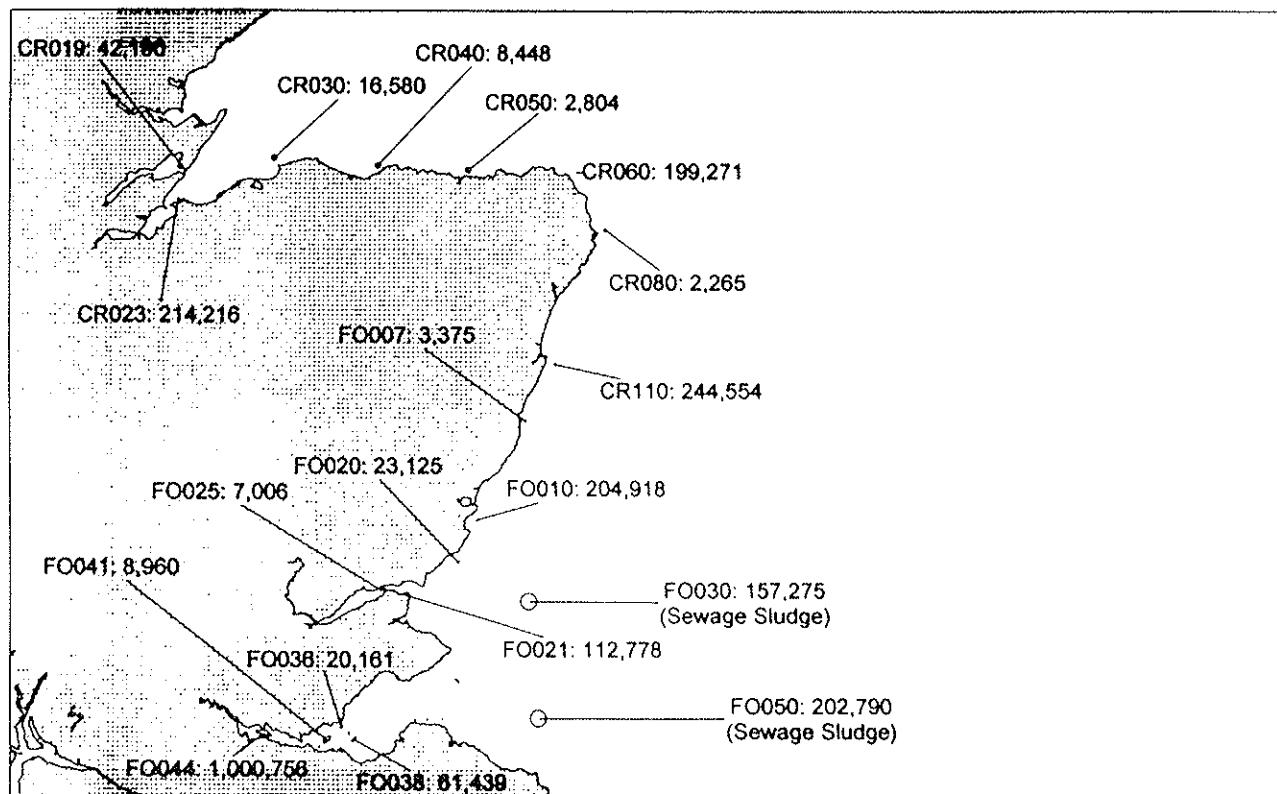
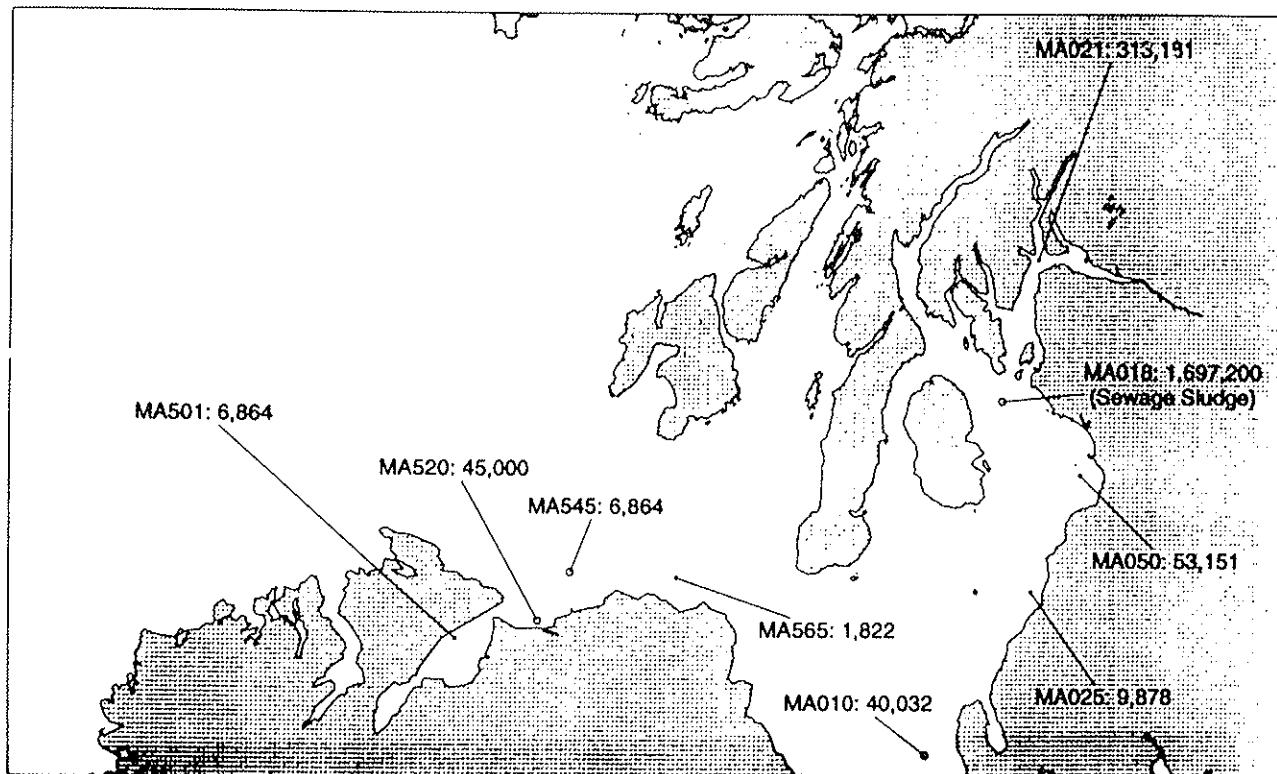


Figure 9d: Approximate positions, site codes and quantities disposed of (in tonnes) by the United Kingdom in 1996  
(Western Scotland and Eastern Scotland)  
All waste is dredged material unless waste type is stated

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